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A comparative newcomer in the field of architectural criticism, she writes, "My interest in architecture sprang from my discovery in my own reflection and reading that the best way there is to enter into the essence of the esthetic experience is to analyze the total room-experience with its charge of feeling, and its necessary pluralism." This inquiry into the meanings of two words throws widening circles of comprehension about the by now well-established doctrines of Modernism.

CLEAN AND ORGANIC: A STUDY IN ARCHITECTURAL SEMANTICS

A curious reader of the architectural literature of the last few years is struck by the recurrence of certain terms of praise applied to the new forms, for example, the word 'clean.' "A good word in architecture is clean."[1] Frank Lloyd Wright said this many years ago, and a reader sensitive to words will have noticed how frequently it is his ultimate sign of approval. For instance: "We may now live in prismatic buildings, clean, beautiful and New";[2] "straight lines . . . severely clean and delicate";[3] ". . . the clean, significant lines of sculptural contours."[4] And with machines and Shinto in mind he expands into: "Today it seems to me we hear this cry 'Be clean' from the depths of our own need. . . . Clean lines . . . clean surfaces . . . clean purposes. As swift as you like, but clean as the flight of an arrow."[5] In his *Autobiography*, as if hailing a glad day, he writes: "A sense of cleanliness directly related to living in the sunlight is coming."[6] Whatever his divergence from Wright otherwise, Le Corbusier also admires the clean. He testifies that it was the effect of the Acropolis upon him that made him a rebel, the Acropolis with its "clear, clean, intense, economical, violent Parthenon."[7] Frederick Etchells, introducing Le Corbusier's *Towards a New Architecture*, speaks of a house "hard and clean," with "fittings as coldly efficient as those of a ship's cabin."[8] J. M. Richards has spoken of "the triumphs of clean engineering"[9] and "the clean and efficient" new style.[10] Prizes have recently been awarded for designs for churches because they were "cleanly simple and structurally straightforward."[11] Elizabeth Mock ending her essay *Built in U.S.A., 1932-1944* with appreciation of the unique beauty possible in a bridge—the "spare and muscular beauty" achievable there—comes to a period with the phrase "the clean economy of the essential form."[12]

The frequency of this one "good word" is striking. But others are common; for example, 'logical,' 'economical,' 'constructive.' Indeed, any word-sensitive reader could verify the pervasive presence of the following ten terms as carrying an assumption of positive value in contemporary architectural design: modern, clean, logical, economical, basic, social, honest, organic, constructive, vital.

For observers of the ways of words these terms do not remain in isolation, but dispose themselves in families of terms, and mate with synonyms more or less exact. The groups of terms having thus massed themselves generate families of counter-terms. One may envisage an architectural-verbal situation with dynamic interrelations approximating this pattern:

(1) A positive group of near-synonyms:
clean, pure, sharp, trim, hard, bright, tight, stripped, stark, antiseptic, crystalline, uncluttered, naked, crisp, sheer.

(2) A sympathetic family of moral terms, cousins to the first set, immediately recognizable both as of frequent occurrence and of cognate intention:
honest, candid, frank, straightforward, virile, uncompromising, integral, restrained, ascetic, just, chaste, mature, orderly, dignified, right, courageous.

(3) Another sympathetic group connoting analytical reduction:
logical, scientific, rational, true, inevitable, basic, diagrammatic, valid, simple, essential, geometric.

(4) A group of terms used for denigration and representing an architectural state of affairs uncongenial to the first, and by implication to the second and third:
ideal, unreal, romantic, mixed, soft, murky, cluttered, untidy, misty, sentimental, emotional, traditional, subjective.

Though we have here to do with words and not with designs themselves, there can be no doubt that the architects who use the words intend them to apply to real architectural designs, for description and/or appraisal.

The words do not compose a 'literary' or 'subjective' characterization of architectural facts, but are clearly taken to refer to properties that inhere in those facts. Semanticists approaching this double situation of words and shapes would agree that the words are intended to describe and to evaluate architectural facts. They would assume that a verbal design parallel to the visual design was being constructed. Such analysts would also be interested, however, in tracing the terms reflectively to their various contexts and in checking the values associated by the authors with the terms. It would not be strange if they disclosed ambiguities in the employment of identical signs, and tensions buried in apparent verbal agreements, so that the two designs might not fit together after all.

If this occurred, it would seem that suggestions of more than verbal interest might come out of the examination of language habits and preferences in the architectural field. Words, floating like veils, over a philosophy of design, may cover up shifts in thinking, and attachments to surprising values.

This can be shown in the case of our word 'clean.' A study of passages, illustrations, and references in which 'clean' occurs gradually reveals at least four distinguishable directions of meaning of this favorite adjective. As associated with the triumphs of engineering, and its general economy and efficiency, 'clean' architecture would simply signify building involving the minimum expenditure of energy and materials for the end desired. This is, of course, the basic virtue usually attached to 'functional' architecture. But when functional architecture becomes self-consciously clean, it assumes a strong negative tone. Its first value involves expulsion: ejecting the irrelevant. All architectural elements are then termed irrelevant that have no basis in actual human need, but are lifted out of a bygone culture for sentiment or ornament's sake, through literary allusion, secondary meaning, or inertia; offering what once was fitting form for an epoch's habits after the habits are dead. "This clearing away of the historic debris, this stripping to the skin, was the first essential mark of the new architecture."[13] Architecture that is 'pure,' then, in deed and intention cuts away the fatty excrescences of the traditional styles, the classical orders, cornices, and embellishments. From inner equipment disappear old carved furniture and heirloom silver and china. The purists of architectural language throw out the moldy rhetoric of Roman banks and Gothic churches. Nuances of color containing the impurities of gray reflect for them a feeble and lingering fancy for dimly remembered shadows and compare poorly with clean heraldic colors.

First of all, then, 'clean' as an honorific term in architectural writing means relevance, and it becomes synonymous with logical. A specific, practical purpose confronts the designer and his business is to build solely for that end. Here the value involved is concrete, practical, and verifiable. All the group of kindred terms that expand the idea of good logic belong with 'clean' (1), and dirt, as in the proverb, means something out of place. Close calculation, clear statement of what is wanted, and computation controlled by the limited tangible conscious goal sum up the intention.

The second association leaves metaphors for literal significance. It is a direct carry-over from hygiene, antisepsis, good-housekeeping. Here may be noticed the conspicuous interest in sun and air, washing-machines, bathrooms and kitchen equipment. It is no accident that Dean Hudnut, recounting in a charming fable the conquest of modern design over antiquarianism, points his moral with a washing-machine. "The clean round washing-machine" with its "white and restful serenity" drove out in his parable attachment to highboys, mirrors and glass chandeliers.[14] The same overtones of "the surgery and enameled bath" are acknowledged by Kenneth Clark, but from the opposition. "Art," he asserts, "must be slightly septic." He allows that modern functionalism has perhaps been a health-giving interval in the history of European building, as it has applied the cure of starvation and the cold pack.[15] In general, the wholesome character of sun and air is a common theme for the new architect. We have already noted Wright's remark: "A sense of cleanliness directly related to living in the sunlight is coming." Siegfried Giedion takes the evolution of the bath as one of the significant aspects of the command taken by the machine;[16] and James Fitch gives a section to "When the Bathroom Comes of Age," in his recent *American Building*.[17] Le Corbusier calls good planning "healthy."[18] Associated with the overtone of health and sanitation in the term 'clean' are allusions to the fit form and function of the athlete. The clean line of modern engineering is, we are told, like the economical cut and curve of a diver's leap.[19] Again, pure building would "show the naked wall in all its sleek beauty,"[20] and once more, a modern bridge is "spare and muscular."[21]

'Clean' may also mean for our writers the clean soul as well as the bathed, sunned and taut body, and this is the third variant. The group of terms denoting moral character, beginning with 'honest,' has been given above. An example of this sense occurs in the boast that functional architecture is "virginal of lies." What is meant here by lies? "The hollow sham of axial symmetry";[22] "the multitude of dishonesties—the cornices and the columns, the fake palaces and fortresses . . . the dishonest use of the symbolic function. . . ."[23] More or less consciously, but at any rate commonly, architectural writers fold moral values in with engineering efficiency and sun-baths: chastity, integrity, continence, directness.

The expansion of meaning from pure and wholesome in the physical sense to pure and wholesome in the moral sense is natural. It may even be inevitable, for our hygiene stands to us, of course, for a kind of morality. But the semanticist is aware, even so, of a change in tone at this point from description to emotive metaphor. Just how appropriate the attachment to architectural design of terms primarily applicable to human character and motive may be is not to be too hastily judged. It is probably only those influenced by contemporary depth psychology and its symbolisms who would not cry 'metonymy' and 'question-begging' when moral values are allowed to ride in on material fact and shaped space as real aspects of an architectural situation. Certainly both the large class of architectural theorists and of semanticists who are sympathetic to logical positivism would label as nonsense such metaphorical language in architectural description. For how can you verify the virginity of a wall or the sincerity of a stone cylinder? If words referring to moral character in modern construction are not nonsense, they are at least rhetoric requiring scrutiny.

The fourth meaning of 'clean' is an intensification of the first sense so high in degree that the whole conception appears to split and shows not only a new but ultimately contrasting meaning. Now 'clean' architecture, we know, always involves stripping and purging. But the cleansing process may be directed against irrelevancies in a specific culture, region, individual plan of life or building requirement, as in meaning No. 1, or it may imply pursuit of purification for its own sake and abstraction carried to the limit. There is a temperament that never rests until it comes to what it takes for ultimate, absolute, or supreme. Both mathematical logician and mystic seek the basic and the simple in this unqualified way, and a strain in recent architectural thinking moves toward the same limit.

The best example of architectural thinking in search of the absolute is the Russian theorizing that followed the Revolution as described by El. Lissitzky.[24] He begins his account by contrasting the new way of building in western countries with the new way in Russia. The new way in the West, he says, was largely the result of mechanical invention. While new materials and techniques altered for Europe and America the scale and design of building, the alteration was in general external compared to what went on in Russia. In Russia the social and political revolution of October, 1917 signified an absolute beginning—a new page in human history. The new building in Russia has to be understood in terms of the demands and ideals of a new world, and not of new implementation.[25] The Soviet regime, Lissitzky continues, wished "*nicht nur weiter verbessern, ausbauen, sondern ganz neu umbauen, nicht nur construieren sondern rekonstruieren.*"[26] The utterness of change, the cleanness of the slate, he makes vivid by saying that the architects had as it were to strip off their own skins and grow new.[27] The very conditions out of which the new building could proceed had to be created, without precedent and without a cooperating industry. It was in experimental laboratories, speculation and imagination, that the conception of the new assembly-places, offices and housing came to birth.

While largely sealed off from the rest of the world, the new Russian architecture did feel the influence, Lissitzky says, of the Russian Suprematist movement in painting. Painting because of the flexibility of its materials and immunity from court control had gone forward. As the word 'supreme' suggests, it had approached that state of absoluteness which for social reasons was bound to characterize the new building. Malewitsch, the leader of the group, pushed his analysis of the elements of painting to *Urelemente,* primitive terms.[28] In form the ultimate is the straight line; in color, white on white. Supreme paintings built with these simples, and their world, presented a geometrical order, a "*Gegenstandslose Welt.*" Malewitsch's own description of his pursuit of pure essence resembles a mystic's story. He went into the desert, he said, to find pure feeling's form.[29]

The crystalline metric invented by Malewitsch, colorless and mathematical, is architectonic, and automatically becomes the transfer station for architecture proper. Now construction thus committed to the bare essence of abstract mathematical forms and necessary relations sloughs off not only dead styles and unmeaning ornament but approaches the limit of excluding the rich variety of cumulative human experience. At this extreme it yields pure prisms and lonely cubes. A philosophy of nihilism is not far away.[30] We might call such thinking the fallacy of placeless abstractness—a fallacy more prevalent now than Whitehead's 'misplaced concreteness.'

In noticing the variants of the conception of 'clean,' "the good word in architecture," we have moved from its most concrete to its most abstract intention. 'Clean' can be roughly synonymous with 'thought through,' in which case 'clean' is only another word for functional, logical, or efficient with pleasant overtones of health and sparkle. It is not then used to implement a metaphysic or radicalism. But it can also signify an intense pursuit of pure form as such. Then it connotes an other-worldly mathematical ultimate. The extreme of this abstract tendency we illustrated from Russian Constructivism and Suprematism, where the ideal in art breaks from the control of the particular concrete occasion and any common circumstance.

Pursuing our semantic analysis, we may take a second term, 'organic,' also a favorite in recent architectural writing. Again it happens that we may gradually discern several directions taken by a single sign. For instance

'organic' may mean like a crystal. The ideal of Russian constructivism, says Lissitzky, was "*eine Welt kristallinischer Organik.*"[31] Organized in the sense of the crystal apparently connotes an articulation of elements, tight, transparent, and spare; for whenever the word 'crystalline' occurs in recent discussion, it implies austerity such as was our equivalent of the fourth sense of 'clean.' The crystalline is the strictly geometric, says Malewitsch;[32] and Moholy-Nagy identifies the essence of an organic form with the crystallization of its function.[33] Readers of Herbert Read's *The Green Child* will recall that near the end rock crystal is made both the embodiment of perfect order and absolute beauty and also the symbol of immortality "when the body, no longer recognizably human, but rather a pillar of salt, took on the mathematical precision and perfect structure of crystal."[34]

But 'organic' form in architecture is oftener contrasted with rock-structure than assimilated to it. It is so contrasted and diagrammed by Lennart Holm in his analysis of contemporary tendencies in Sweden.[35] There the crystalline principle is treated as mechanical, while the true 'organic' is set over against it as individual and personal. But it is Wright, himself, who has fixed the association of 'organic' architecture with the growth of trees, the life-principle in seeds, and nature springing from the soil. Not that Wright's treatment is simple and univocal. Everyone knows that his ideas grow and span as does his organic architecture itself. So while the word 'organic' means for him a function finding its proper form just as the oak or pine realizes through a period of development the shape appropriate to it, it also can imply the glory of a vigorous maturation. His own art is the flowering of an occasion, and he used the word 'efflorescence' in referring to the achievement of Sullivan.[36] This means that his organic architecture, springing from its soil of conditions and needs, is not limited to a bare matching of those conditions. Rather organic architecture here transcends the functional and efficient and rises into the bright manifestation of energy. What the seed produces, when matured in Wright's imagination, is rich and colorful — Aristotle's 'supervenient perfection.' Wright's architecture is, as we all know, romantic as well as functional; and the word 'organic' covers both phases. Just as a tension revealed itself among the meanings of 'clean,' so a polarity comes to light here in the attempt to define architectural organicism. Architecture, organic in the sense of the crystal, freezes the individual thrust toward vital abundance. So it is part of the Soviet ideology to deny value to the individual work in its romantic isolation. But with another kind of organic architecture, transcending in bloom and joy its conditions, and rising from law into grace, we pass to our third variant.

In characterizing the architecture of the San Francisco Bay Region, Lewis Mumford called it an "organic architecture which seems to have come about through unforced personal growth."[37] In her longer and more intimate essay Elisabeth Thompson finds this organic architecture earning the caption 'vital.'[38] 'Vital' is in our list of the most-used honorific terms. Gropius, for example, with his different *Bauhaus* orientation, is translated as employing the root-term four times on one page.[39] Linked with the idea of organism in Bay Region architecture, it implies not only freshness, individuality, and creativity, but even historical continuity. Traditional architectural practice is not cut off from 'modern' construction for this group of builders, but fertilizes it and gives it the sanction of good ancestry. The flowering of building on the Bay included in its scope not only individual variation, sentiment for the intangibles of 'home,' but respect for the past.

Polarity shows itself, then, in organic architecture in the attitude toward the history of architecture. The moderns have been prone to be anti-historical. Indeed the first term on our list of favorite adjectives was 'modern,' and deservedly so; for the set of words characterizing and praising today's independent attitude of the new builders is more common than any other. They say they belong to the living present, directly affirm our contemporary world, are members of the new order, and so on. The purge that has accompanied their fastidious cleanliness has in general implied rejection of past architectural habits. In this respect the extreme is once more the Russian crystalline reform. For the Soviets right after the Revolution no continuity seemed possible. With life and economy made over on a new pattern, housing, clubs, bureaus, and industry had all to be cut *de novo*. But where there has been no such radical revolution, organic architecture would seem in principle to call for rooting in the past as well as flowering toward the future. For "the modern is never simple; it is always, so to speak, on the top of something else; always charged with a contradiction, with a reminiscence, in one word, with a history."[40]

In general, one can no more have an art that initiates its own world than one can perceive without apperceiving. What is created anew has always to be this or the other particular aspect. Even the crystalline Russian in the very midst of talk about "*nicht nur weiter verbessern, ausbauen, sondern ganz neu umbauen*" reports complacently Russian pre-fabrication in the seventeenth century, so that continuity, deeply embedded, yet exists.

Writers who designate architecture as 'organic' may then mean almost opposite things by the same word of praise, just as they may be intending diverse qualities by 'clean.' If Sense 3 of 'organic,' the concrete and historical, be grafted on to Sense 1 of 'clean,' an ideal of design tolerant of all good suggestion from history,

locus, or feeling is welcomed without allowing irrelevance. Sense 4 of 'clean' and Sense 1 of 'organic' converge toward the fetish of omission, and carry what purports to be mathematical rigor in the direction of mystic nihilism.

DUKE UNIVERSITY

1. *Modern Architecture* (Princeton University Press, 1931), inside back cover.
2. *Ibid.*, 38.
3. *Ibid.*, 19.
4. *Ibid.*, 52.
5. *Ibid.*, 35.
6. (Longmans Green and Co., London, New York, 1932), 353.
7. *New World of Space* (Reynal & Hitchcock, New York, 1948), 66.
8. (Brewer, Warren and Putnam, New York, n.d.), v.
9. *An Introduction to Modern Architecture* (Penguin Books, Inc., New York, 1947), 90.
10. *Ibid.*, 2.
11. *Architectural Record*, May, 1947, 114.
12. (Museum of Modern Art, New York, 1944), 114.
13. Mumford, *Culture of Cities* (Harcourt Brace & Company, New York, 1938), 408.
14. *Architecture and the Spirit of Man* (Harvard University Press, Cambridge, 1949), 123; also see all of Chapter 9.
15. "Art and Democracy," *Magazine of Art*, February 1947, 76.
16. *Mechanization Takes Command* (Oxford University Press, New York, 1949), Part VII, 629-712.
17. (Houghton Mifflin Company, Boston, 1948), 282-288. The section begins: "If there is one thing for which America is famous and of which all Americans are proud, it is that standard of living which allegedly provides a bathroom for all of us."
18. *When the Cathedrals Were White* (Reynal & Hitchcock, New York, 1947), 216, 217, 34.
19. Mumford, *op. cit.*, 416.
20. H. P. Berlage, *Gedanken über Stil in der Baukunst* (Leipzig, 1905), 52, 53. Quoted by S. Giedion, *Space, Time and Architecture* (Harvard University Press, 1942), 234.
21. Mock, *op. cit.*, 114.
22. Walter Gropius, *The New Architecture and the Bauhaus*, trans. Shand (Faber and Faber, Limited, London, 1935), 56.
23. "Esthetics," *Architectural Forum*, November, 1948, 143.
24. *Russland (Neues Bauen in der Welt, Bd. 1)*. (Wien, 1930).
25. *Ibid.*, 9.
26. *Ibid.*, 10.
27. *Ibid.*, 11.
28. *Ibid.*, 10.
29. Kasimir Malewitsch, *Die Gegenstandslose Welt* (Albert Langen Verlag, München, 1927), 92.
30. The following reference to the Suprematists is taken from "A Note on the New Russian Poetry," by Louis Lozovick, which appeared in *Broom*, 1922:

". . . the Suprematists . . . seek the 'zero point of art' and the Nothingists (Nitchevoki) . . . seem to have found it. Before the revolution Krutchenych thought this admirable:

Dir boor shtchill
oobyeshtchoor
skoom
vy so boo
rlez

And now Malyevitch thinks this superb:

Oole Ele Lel Lee One Kon See An
Onon Koree Ree Koazambe Moena Lezh
Sabno Oratr Tulozh Koaleebee Blestore
Teebo Orene Alazh

"These quotations are as cryptic in the Russian original as in the literal English transcription. The theory of the extreme poetic Left absolves the poet from the use of comprehensible language. The great Russian poet Tyutchev said:

A thought once expressed
Becomes a lie."

31. *Op. cit.*
32. *Op. cit.*, 52.
33. *New Vision and Abstract of an Artist*, revised edition (Wittenborn, Schultz, Inc., New York, 1949), 62.
34. (New Directions, New York, n.d.), 177.
35. In "Canon," by Eric de Maré, *Architectural Review*, February, 1949, 96.
36. Henry Hope gives meaning to the term when he says that in Sullivan's architecture ornament and decoration were the final expression of the function — "mobile, delicate and sumptuous."
37. "The Architecture of the Bay Region," *Domestic Architecture of the San Francisco Bay Region*, San Francisco Museum of Art, Civic Center, San Francisco, September 16, October 30, 1949.
38. *Ibid.*, "Backgrounds and Beginnings."
39. *Op. cit.*, 62.
40. Bernard Bosanquet, *A History of Aesthetic* (London, George Allen & Unwin, 1922), 323.

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THE PARADOX OF ARCHITECTURAL THEORIES AT THE BEGINNING OF THE "MODERN MOVEMENT"*

I

The interval of more than one generation provides enough historical distance and emotional detachment to summarize the aesthetics of architecture as they developed in Germany during the first quarter of the twentieth century. The analytical, theoretizing tendency, so typical for German art movements, explains why this development took place almost exclusively in Germany. French aesthetics in the field of architecture stood still entirely under the influence of the Ecole des Beaux-Arts. In England, Ruskin had ruled for many decades and independent aesthetics developed only long after 1900 under the influence of Clive Bell and stimulated by Roger Fry and Herbert Read.

The basic theoretical concepts in Germany seem to contradict the prevailing trends of the creative architects then at work. Since Alois Riegl[1] had discussed the general identity of the *Kunstwollen* of a period in actual creations and theoretical writings alike we became accustomed to take this parallelism for granted. Certainly, theoreticians of the fifteenth and sixteenth centuries in Italy or of the eighteenth century in France had pronounced ideas which were realized in contemporaneous architecture. At the beginning of the twentieth century, however, we encounter a peculiar discrepancy between theory and the so-called "modern movement." While architects from Adolf Loos to Le Corbusier strove for strongest expression of functionalistic ideas,[2] aestheticians pondered mostly about problems of space and volume, of *Wirkungsform* (perceptual form) and *Daseinsform* (actual form), as they applied to architecture. Both groups, theoreticians and creative artists alike, met but in one goal: in the overcoming of nineteenth-century eclecticism. The fight against "the picturesque in architecture," recognized by Carroll Meeks and Nikolaus Pevsner as the common stylistic denominator of the nineteenth century, was the only uniting element for theoreticians and creative artists.

Pevsner's presentation of the "New Movement" is to date its clearest and most brilliant history.[3] Yet his statement, "the history of artistic theory between 1890 and the war proves the assertion . . . namely that the phase between Morris and Gropius is a historical unit understandable as such," is of limited validity. It is true only if referring to the utterances of the creative artists themselves and their prophets. In the United States, the basic concepts of functionalism were formulated by Horatio Greenough, 1852,[4] and by Louis H. Sullivan, 1886, from seventy to forty years before they were realized.

During the nineteenth century in Germany, the decisive architectural theories were formulated by Karl Friedrich Schinkel, Karl Bötticher, and Gottfried Semper. The impact of their ideas controlled architectural education into the twentieth centrury. Thus it is not astonishing that the functionalists of the "new movement" had simply to take off the eclectic costume and the continuous references to Greece and Rome to arrive at ideas which in principle differed not too much from those of the *Altmeister*. Even before them, in 1809, Hirt[5] had summarized his basic concepts in saying, "*wer demnach richtig konstruiert, baut eben griechisch*" (he who constructs logically, is building in the Greek style). Since during the period of neo-classicism, Greek architecture was considered as artistic perfection *per se*, Hirt's statement means actually that artistic perfection is automatically achieved by perfect construction.

*This paper represents a condensation of a contribution to a *Festschrift* dedicated to Hans Tietze on the occasion of his 70th birthday, 1950.

Schinkel[6] glorified the unity of "purpose, material, and technique" by insisting on the intentional practicality of the layout and on the clear articulation of construction which should correspond to the specific conditions of each material and technique. His tremendous interest in constructive details proves that his ideas actually represented a clear-cut functionalism, hidden behind an eclectic classicism.

Bötticher[7] in his ultra-dogmatic classicism traced all principles of artistic creation in architecture back to Greece, though misinterpreting almost all details of ancient forms. Like Schinkel, he saw the perfection of Greek art in the "identity of form and idea."

Semper[8] introduced the contrast of "tectonic" and "stereotomic" architecture (an architectural system based on the relation between load and supporting structure, as against an architectural system based on the continuity of volume), an antithesis which was to become the central problem of architectural aesthetics. The "*Uebereinstimmung einer Kunstgeschichte mit ihrer Entstehungsgeschichte, mit allen Umstaenden und Vorbedingungen ihres Werdens*" (the congruity of each artistic phenomenon with its origin and the specific conditions of its evolution) became for him the decisive concept. He called the "style" of an architecture "true" only if its forms were motivated by construction, material, and the prevailing socio-economic, cultural, and climatic conditions. Thus Semper's ideas represent the Proto-Renaissance of later functionalism.

II

While architects in all German academies and institutes of technology at the end of the nineteenth century were taught in terms formulated by the holy trinity of Schinkel, Bötticher and Semper, new architectural theories were formulated from another side. Now no longer creative architects, but theoreticians[9] began shaping a new approach toward architecture: Woelfflin, Schmarsow, and Adolf Von Hildebrand, the last a most important systematic aesthetician as well as a sculptor. Their decisive writings appeared between 1886 and 1908.[10] Although architecture was not the exclusive topic of their aesthetics, the impact of their thinking upon the theory of architecture from then on can hardly be overestimated. The relationship between form, material, technique and function was no longer their central problem, but the aesthetic qualities of space, volume, and form, and their visualization.

Woelfflin[11] conceived a style primarily as the visual expression of the "*Lebensgefuehl*" of an epoch. This concept of a common denominator in *all* vital expressions of a period did not enter the consciousness of the first generation of twentieth-century German architects. The awakening functionalism considered only the mechanistic behavior pattern and tried to create the most efficient frame and organization for it. It did not consider as pertinent the emotional reactions of man, what Woelfflin called "humanization," the "*Nacherleben der Kraefte.*"

While for Woelfflin psychological reactions provoked by the art work were the decisive factor, Schmarsow[12] considered architectural space as the active creation of human "*Koerpergefuehle*" (feelings and conscious awareness of the body), as a reaction of man's physique, based mainly on physiological laws of human nature, projected into the outer world. Movement into depth becomes for Schmarsow identical with the creation of aesthetic space. The outer skin of a building, the façade, must be conceived as merely the shell or frame of this purposefully organized hollow. The least important part of Schmarsow's theory, namely the influence of purpose and function on form, was the one accepted by architects at the beginning of the century. Thus the idea that one must build from inside to outside, from interior to the volume-body *(von innen nach aussen)* became actually an architectural slogan. However, the architects were satisfied if the purpose was functionally expressed in the layout and from there transferred to the façade, while for Schmarsow the creation of space was the decisive factor and its purposeful (functional) organization only a natural symptom of all human activity.

Adolf Von Hildebrand[13] developed his theories in concert with his sculptural work and shared many concepts with Conrad Fiedler[14] and Hans Cornelius.[15] According to Hildebrand, space must be conceived as a succession of visual planes confined in depth. The architectural theoreticians of this period recognized fully that Hildebrand's emphasis on the chronological succession of visual impressions in sculpture could easily be adapted to architecture and thus introduced the element of time into architectural aesthetics.[16]

III

Structures which began to be built around 1900 and which for the first time no longer indulged in forms borrowed from earlier periods, were in no way—neither directly, nor indirectly — influenced by the contemporaneous architectural theories as briefly outlined above. The "*Jugendstil*,"[17] defined for the first time as such in 1899 by Rudolf Alexander Schroeder, and the contemporaneous "*Wiener Sezessionsstil*" did not create any new concepts of space and three-dimensional organization, but merely succeeded in overcoming the eclecticism of the nineteenth century.

The *Jugendstil* stayed essentially a decorative movement, which with its curved lines swamped all fields of applied art. In architecture it did hardly more than paste "organic" ornamentations on buildings whose originality consisted mainly of the changed appearance of their façades.[18] In these façades so-called organic forms merged with Rococo derivations and Japanisms.[19] The

emphasis on the two-dimensional plane was natural since most of the leaders of the new movement — Joseph Maria Olbrich,[20] Henry Van De Velde,[21] Bernhard Pankok — were originally painters, with only one sculptor among them, August Endell.[22] The leaders of the parallel Vienna movement of the "*Sezession*" — Otto Wagner[23] and Josef Hoffmann — however, in contrast to the representatives of the German *Jugendstil*, had begun as architects.

Neither the *Jugendstil* nor the *Wiener Sezession* created any new concept of space or three-dimensional organization beyond the changed appearance of their façades. There was only one man who created an intrinsically new architecture: Adolf Loos[24] from Vienna who, with the hindsight of half a century, may be called the first pioneer of what actually became a new architecture. Not blinded by the Secessionists' and Van De Velde's attempts to overcome the eclecticism of the fading century — a goal with which he heartily agreed *per se* — Loos fought from the very beginning against the wildly sprouting arbitrary ornamentation of the Vienna *art nouveau* and of Van De Velde. Although Wagner had already glorified the practical, and emphasized material and construction as such, his actual work succumbed in many respects to the playful atmosphere then prevalent in Vienna. Thus Loos stood out as the mercilessly logical and radical leader. He was the first to glorify the engineer, proclaiming that "each material has its own form and no material can employ the forms of another material." Against the ornamental fervor which surrounded him, he insisted that "the individual human being is not able to create a form, neither is the architect." Loos contradicted at the same time the mere functionalists who later liked so much to refer to him, in saying, "everything which serves a purpose must be excluded from the realm of art." Loos' executed architecture and interior decorations from 1898 on prove the identity of his theoretical and actual work. All later functionalists are only repeating Loos' ideas, often with identical words — although widely varying in their architectural language.

The *Werkbund* Exhibition in Cologne, 1914, secured the victory of functionalism. German architects and *Kunstgewerbler* (arts and craftsmen) decided against Van De Velde's individualistic and rather subjective ideas, against *Jugendstil* and *Wiener Sezession*, in favor of the normative engineer-defined concepts of the *Neue Sachlichkeit*. The basic principles of French iron construction (The *Halles des Machines*, Paris 1889, and the contemporaneous Eiffel Tower, A. G. Perret's and Tony Garnier's work between 1900 and 1905), of the Chicago school of Holabird, Root and Jenney, of Sullivan and Richardson in the 1880's,[25] and last but not least of the younger Frank Lloyd Wright,[26] were worshiped, spread and developed further by the *Deutsche Werkbund*. Among those architects who contributed most to this development, Peter Behrens,[27] Paul Bonatz, Theodor Fischer, Wilhelm Kreis, Hans Poelzig[28] Heinrich Tessenow,[29] Bruno Taut[30] and Walter Gropius[31] are probably best known in this country. These architects, born between 1870 and 1890, continued their decisive functionalism, after the hiatus of World War I,[32] in a great variety of individual expression. The main tenets of functionalism were taken for granted and enthusiastic interpreters crowded the pages of the leading art periodicals with fervent elucidations of more or less diluted functionalistic ideas.

IV

Now, in 1914, at the time of the *Deutsche Werkbund* Exhibition, the revolutionary movement of ten years ago had become the ruling taste, if not a style. Almost all creative architects worked under the suggestive spell of exclusive functionalism. There were, however, other problems which became pivotal for architectural theoreticians: the aesthetic meaning of space, of volume, of their interrelationship, and the symbolistic or cognitive character of architecture.

Architecture as Symbol

The symbolistic character of architecture is most definitely emphasized by Leopold Ziegler.[33] For him, the accent in architecture shifts from the emphasis on construction to the development of those parts which are *per se* structurally undefined, such as façades, ceilings, etc. The lawfulness of matter becomes evident to him in man-made structures rather than in nature. Nature *has* form, architecture (and sculpture) *is* form. Since for Ziegler's metaphysical concept essentially the work of art represents a value, architecture should show only a "necessary minimum of structural elements," — a most outspoken anti-functionalistic attitude.

Another scholar, Max Unglehrt,[34] denies also any kind of functional causation of architectural form, which for him is a "symbol of absolute matter," necessarily always in abstract form.

For Hermann Eicken,[35] architecture, like any art work, must primarily clarify our concept of the world, through the combination of visual and conceptual approach. The visual approach conveys *Bildform* (visual form) in two dimensions only, as Conrad Fiedler and Adolf Von Hildebrand have stated before. The conceptual, cognitive approach conveys in three dimensions, the form in volume *(Koerperform)*. While the visual form is the goal of painting and sculpture, the conceptual form is the task of architecture. Purpose, material, etc., have nothing to do with the conceptual form; the various styles are for Eicken merely different stages of volume imagination during their respective periods.

With Eicken, Rudolf Metzger[36] demands from any work of art primarily the clarification of our concept of the world. This is achieved in architecture by identifica-

tion of architectural forms with human forms, and especially with human movements. Actually specific architectural forms, from the Greek column to the Gothic pointed arch, to the modern cantilever girder, represent frozen human movements. In other words, Metzger elaborates Lipps'[37] theory of *Einfuehlung* (empathy) applied to architecture. Metzger is so one-sided in his concept of the identity of architectural forms and dynamic sensation *(dynamische Einfuehlung)* that for him the categories of space and volume exist as little as those of function.

Josef Frank,[38] the only creative architect among those emphasizing the symbolistic and cognitive character of architecture, has not formulated his theories in a consistent scientific manner. Nonetheless, the collection of his essays, "*Architektur als Symbol*," explains clearly his ideology. He sees in the style of a period nothing but a totality of its symbols. In his negation of functionalistic expression Frank is leaning over backward and becomes as dogmatic as those he is fighting against. And similar to Josef Frank, Emil Kaufmann[39] depicts, from the viewpoint of the historian, architectural developments as a history of ideas. Like Frank he believes in the autonomy of architecture, that "not new forms of construction or materials but new ideas have produced new architecture."

While these men dealt with architecture rather as one of the expressions of civilization, with architectural history rather as the history of ideas, other schools of thought approached the heart of the matter by analyzing primarily the actual content, the "subject matter" of architecture, its expression in terms of space, volume, and their interrelation.

Space as the Content of Architecture

Hermann Soergel,[40] the most important representative of the space concept, follows Schmarsow insofar as he considers space as the actual content of architecture and sees volume merely as means for the creation and definition of space. Most decisive is Soergel's distinction between *Daseinsraum* (existential space, the objective real, imaginable space), *Erscheinungsraum* (visual space, i.e. the physiological, visually perceivable space), and finally *Wirkungsraum* (effectual space, i.e. the aesthetically impressive space). It is only the last which is created by the architect and to which the beholder reacts. Soergel distinguishes quite definitely between architecture as technique and architecture as art. Technique can be molded artistically, without losing its character as technique, art may have technical qualities without losing its quality as art. Technique means compulsion (material, economic, etc., limitations), art means liberty. Aesthetic effects based on technique, as those of industrial design, differ by principle from aesthetic effects based on art. Architecture as art is autonomous, in spite of its rational, technical, and material data. The anti-functional viewpoint can hardly be pronounced more clearly.

Paul Klopfer[41] considers space also as the content of architecture. He negates Semper's theory not so completely as does Soergel. The distinction between "stereotom" and "tectonic" architecture, both of them creating space exclusively, characterizes Klopfer's approach. It is supplemented by the juxtaposition of forms derived from material and technique (Semper) with forms created by *Formwillen* (Riegl). This *Formwillen* means for Klopfer either static persevering (classic-Apollonian) or dynamic driving (romantic-Dionysian) forces. Therefore the differences between the individual historical styles can be traced back to four basic categories: static-tectonic, or dynamic-tectonic, or static-stereotom, or dynamic-stereotom. Thus he excludes the idea of functionalism as a stylistic criterion.

For Leo Adler,[42] architecture means the translation of an *a priori* purposeless aesthetic space concept into the visual purposeful reality of three-dimensional space *("Baukunst ist die Umsetzung einer Raumidee in eine Erscheinungsform")*. If architecture were only the development of the tectonic structure, its history would mean a logical, but not an aesthetic development. The means of creating architectural space are the surfaces of bloc-volumes. Thus Adler disregards the existence of pure volume architecture completely. The technical-functional concept refers only to individual elements of structure for an intellectually defined purpose, while the real architectural concept mirrors a vision of totality.

Fritz Schumacher,[43] who as city architect and city planner of Hamburg has created a great number of important buildings, is the only practicing architect within this group which considers space the essence of architecture. He distinguishes among intellectual, sensuous and emotional effects of architecture, establishing the sensuous effects as the decisive ones. Thus he relegates functional considerations to a secondary role *("Kunstwirkung ist nicht Sachwirkung, sondern Bildwirkung")*. He conceives of architecture as twofold creation of space by the limitations of volume. Twofold it is because for him the interior is perceivable only as a projection of concave parts into an imagined plane behind, while the exterior, the convex volume, is projected into the superior general space. Architecture, therefore, represents not merely the dualism of space and volume, but a threefold relationship. There exists: interior space; volume, determining interior as well as exterior space; and general exterior space. This threefold relationship can be perceived not only by visual experience but also by movement, successive action in time. Quite consistently, Schmacher explains stylistic differences by shifts within this threefold relationship of interior space, volume, and the comprehensive general space.

The ideas of Paul Fechter[44] and Otto Schubert[45] go in the same direction, conceiving of architecture merely as a problem of a man-created world of space within an already existing space world. Both men identify the history of styles as changes in space concept and reduce the influence of functional needs to a negligible minimum.

VOLUME AS THE CONTENT OF ARCHITECTURE

In contrast to the space fanatics a much smaller group of theoreticians conceived of architecture primarily as the art of shaping volume. Friedrich Ostendorf,[46] the most influential teacher of young architects in Germany between 1900 and 1914, in his "Six Books on Building," preached *Koerpergestaltung* — the shaping of mass and volume — as the aim of architectural endeavors. Since space is enclosed by masses, the real task of architecture is the shaping of the external form which includes space or rooms. Ostendorf's aim is the utmost simplicity in the articulation of masses for the sake of clarity, and in his concept space is reduced almost to a mere hollow within this shell. The act of designing must be based entirely on the concept of the eventual volume-form, emotions must be excluded as much as any specific expression of purpose or structural technique. Since the ideal of volume-form is regularity, even symmetry if possible, Ostendorf practically suggests somewhat classicist forms. While he believed in a general and principal theory of architecture, he pleaded actually only for a revival of a specific stylistic approach similar to the German "Biedermeier" between 1800 and 1830 as his examples and counterexamples of "right" and "wrong" solutions prove.[47]

A pupil of Ostendorf, Hermann Hinselmann,[48] has formulated his master's ideas more precisely, based on a broader historical and aesthetic knowledge, and without Ostendorf's semi-eclectic suggestions of specific, almost traditional forms. To Hinselmann, space in its concavity represents the universal, objective and passive element. It merely envelopes the volume, the specific, individualistic, subjective element. Space by its very character remains always neutral, indifferent, and therefore never can become the object of artistic creation, while volume by proportion, direction, isolation, and concentration can be shaped into a closed and unified form—the ideal of architecture.

Wilhelm Worringer,[49] whose "*Abstraktion und Einfuehlung*" exercised a tremendous influence in his time, and who as an art historian was occupied primarily with stylistic problems, based his deductions also on the concept of architecture as volume. Without discussing here his general theories on styles, which misinterpret Riegl's concept of "*Kunstwollen*," it might be mentioned that Worringer starts with the idea of the essential *Raumscheu (horror vacui*, or rather in this concept "horror of space"). Man's defense against the chaos of the external world is the creation of volumes in geometrical abstraction. Space in itself, however, in Worringer's interpretation, cannot be brought into abstract form. So, the genuine task of the architect lies primarily in the dealing with volume, while the creation of space is for him more an act of "*Einfuehlung*."

COMBINATION OF SPACE AND VOLUME AS CONTENT OF ARCHITECTURE

Only relatively few aestheticians saw a combination of space and volume in mutual integration as the task of architectural creation. A. E. Brinckmann[50] extended Hildebrand's space concept from that of space defined and limited in depth to space unlimited in all three directions. The space-volume relationships of individual units such as temples, cathedrals and bridges, and also of plazas, landscaped terraces, rivers, water areas, are shaped by isolation, combination, coordination, or subordination. The variation of these space-volume relations is the basis of changes in historical styles.

Paul Frankl[51] and his pupil Otto Hoever[52] interpreted stylistic phenomena in a similar way. They differentiated between periods of space addition, as, for example, the Renaissance, and of space division as, for example, the Baroque, representing periods either of static or of dynamic architecture. The function of volume consists merely in the penetration of space. Hence, the changing forms of this penetration cause the variety of styles and the degrees of dynamism in architecture.

Also for Eugen Ehmann,[53] the architect creates a definite form *of* space, but at the same time a form *in* space. These forms are characterized by the articulation, separation, or connection of individual space- and form-elements. Actually his concept boils down to a popularization of Frankl's much more precise definitions.

The integration of space and volume as the basis of all architecture represents also the starting point for my *own* theories.[54] To me, the integration of space and volume was also the starting point, modified, however, by emphasis on the time element. I interpreted the main differences between the various historical epochs primarily by the change of this time element in relation to space and volume. This time element means time in its aesthetic sense, that is the continuity of successive volume and space impressions. This continuity (*"fliessender Vollzug"*) or discontinuity — the latter varying in its rhythm — depends on the architecturally established relationships among three factors: volume, space, and the time needed for their visual perception. This way the time element becomes immanent to all architecturally shaped space and volume. And it is the diversity of this relationship — a perpetual quality — by which the individual styles differ from each other, independent from the functional purposes of each building.

Let us summarize: Whether the theories of the first generation of twentieth century architectural thinkers centered around symbol and abstraction, or around space, or volume, or the integration of both — they all agree in two concepts: in the rejection of eclecticism and in the minimization of functional expression. This functional expression, however, was the starting point and decisive factor in the work of contemporaneous creative architects. It will be up to the architects of the second half of our century to express in their creations those ideas which were the intrinsic problems of the theoreticians of the first decades of our century.

COOPER UNION

1. Alois Riegl, *Stilfragen* (Berlin, 1893). Same: *Die Spaetroemische Kunstindustrie* (Vienna, 1901).

2. These ideas were summarized in some writings which, without discussing principal problems of architecture, emphasized only the importance and artistic possibilities of the new materials and new techniques. Basic among them are: Alfred Gotthold Meyer, *Eisenbauten, ihre Geschichte und Aesthetik* (Esslingen, 1907); Joseph August Lux, *Ingenieuraesthetik* (Munich, 1910); and, as a peculiar aftermath, Siegfried Giedion, *Space, Time, and Architecture* (Cambridge, Mass., 1941).

3. Nikolaus Pevsner, *Pioneers of the Modern Movement from William Morris to Walter Gropius* (London, 1937). His analysis is supplemented best by Fritz Schmalenbach, *Jugendstil* (Wuerzburg, 1934).

4. Horatio Bender Greenough, *Form and Function*. Remarks on Art. Edited by Harold A. Small. (Los Angeles, 1947). Same: *The Troubles, Observations and Experience of a Yankee Stonecutter* (New York, 1852).

5. Aloys Ludwig Hirt, *Die Baukunst nach den Grundsaetzen der A'ten* (Berlin, 1821-27).

6. *Aus Schinkel's Nachlass.* Edited by Alfred Freiherr von Wolzogen (Berlin, 1863-64). See also: E. Loewy, *Die Grundlagen zum Schaffen Karl Friedrich Schinkel's* (Berlin, 1915); Hans Reichel, "Schinkel's Fragmente zur Aesthetik," in *Zeitschrift fuer Aesthetik und Allgemeine Kunstwissenschaft,* vol. VI.

7. Karl Bötticher, *Die Tektonik der Hellenen* (Berlin, 1843-53). Richard Streiter, "Karl Bötticher's Tektonik der Hellenen," in *Beitraege zur Aesthetik III,* Hamburg, 1896.

8. Gottfried Semper, *Der Stil in den technischen und tektonischen Kuensten oder Praktische Aesthetik* (Munich, 1860-63). Hans Prinzhorn, *Gottfried Semper's aesthetische Grundanschauungen* (Stuttgart, 1909). See also: J. Bayer, *Baustudien und Baubilder* (Jena, 1919).

9. As "theoreticians" are considered here merely those who deal preponderantly with problems of architectural aesthetics. Pure philosophers are not considered in this context, although some of them, *e.g.,* Simmel in his *Philosophie der Kunst,* Potsdam, 1922, have contributed very valuable and fertile thoughts.

10. By comparison, Sullivan's first papers began to be published in 1886. The "Kindergarten Chats" were written in 1901. See: Louis H. Sullivan, *Kindergarten Chats* (New York, 1947) (with bibliography); and Louis H. Sullivan, *Autobiography of an Idea* (New York, 1924). See also: Frank Lloyd Wright, *Genius and the Mobocracy* (New York, 1949).

11. Heinrich Woelfflin, *Prolegomena zu einer Psychologie der Architektur,* (1886). Same, *Kunstgeschichtliche Grundbegriffe* (Munich, 1923, 1925).

12. August Schmarsow, *Grundbegriffe der Kunstgeschichte* (Leipzig, 1905). Same. "Raumgestaltung als Wesen der architektonischen Schoepfung," *"Zeitschrift fuer Aesthetik und allgemeine Kunstwissenschaft,* Bd. IX. Same, "Ueber den Wert der Dimensionen im menschlichen Raumgebilde," *Abhandlungen der Saechsischen Gesellschaft der Wissenschaften* Philos. Hist. Klasse, Bf. 48.

13. Adolf Von Hildebrand, *Das Problem der Form in der bildenden Kunst* (Strassburg, 1897). English translation by Max Meyer and R. M. Ogden, New York, 1932.

14. Conrad Fiedler, "Bemerkungen ueber Wesen und Geschichte der Baukunst," *Deutsche Rundschau,* 1878, reprinted in *Schriften ueber Kunst,* Leipzig, 1896.

15. Hans Cornelius, *Elementargesetze der bildenden Kunst* (Berlin, 1908).

16. See Adolf Von Hildebrand, *op. cit.*

17. Fritz Schmalenbach, *Jugendstil* (Wuerzburg, 1935); and especially Ernst Michalski, "Die entwicklungsgeschichtliche Bedeutung des Jugendstils," *Repertorium der Kuntswissenschaft,* Bd. 46, 1925.

18. About the influences of William Morris' more sociologically than aesthetically motivated ideas upon the new, later movement, see Nikolaus Pevsner, *op. cit.*

19. Hermann Muthesius, *Stilcharakter und Baukunst* (Muehlheim, Ruhr, 1902). Muthesius saw in English post-Morris building and crafts essentially the combination of reason and utility which in his concept should become the "Leitmotif" of the *Neue Sachlichkeit* architecture. And these ideas became the basis for the *Deutsche Werkbund,* founded in 1907, as an association which gathered architects, industrialists, craftsmen and the trade.

20. Joseph August Lux, *Joseph Maria Olbrich—Eine Monographie* (Berlin, 1919).

21. Henry Van De Velde. *Kunstgewerbliche Laienpredigten* (Berlin, 1901). Same, *Die Renaissance im modernen Kunstgewerbe* (Berlin, 1903). Karl Ernst Osthaus, *Van de Velde—Leben und Schaffen des Kuenstlers* (Hagen i. W. 1920).
Actually Van de Velde came from the Belgian *l'art nouveau* movement which found its expression in architecture in Victor Horta's house in Brussels (1893). Van de Velde's first houses and pieces of furniture show the same mellow curvatures as Horta's work, although differently motivated.

22. August Endell, *Die Schoenheit der grossen Stadt* (Stuttgart, 1908).

23. Otto Wagner, *Moderne Architektur* (Vienna, 1896). Joseph August Lux, *Otto Wagner* (Munich, 1914).

24. Adolf Loos, *Ins Leere gesprochen* (Paris, 1921). (A collection of essays the first of which appeared originally in 1898!). Same, *Trotzdem,* (Innsbruck, 1931). Heinrich Kulka, *Adolf Loos* (Vienna, 1931).

25. Hugh Morrison, *Louis Sullivan, Prophet of Modern Architecture* (New York, 1935). See also note No. 10, and T. E. Tallmadge, *The Story of Architecture in America* (London, 1928).

26. Frank Lloyd Wright's basic ideas were presented in his paper, "The Art and Craft of the Machine," 1903, reprinted in his *Modern Architecture* (Princeton, 1931). See also *Frank Lloyd Wright on Architecture*—Selected Writings 1894-1940, edited by Frederick Gutheim (New York, 1941).

27. Fritz Hoeber, *Peter Behrens* (Berlin, 1913).

28. Poelzig later on developed a highly individual style, which

expressed itself in outspoken baroque terms: see Theodor Heuss, *Hans Poelzig—Bauten und Entwuerfe* (Berlin, 1939).

29. Heinrich Tessenow. *Hausbau und Dergleichen* (Berlin, 1915).

30. Bruno Taut, *Bauen* (Leipzig, 1927).

31. Walter Gropius, *The New Architecture and the Bauhaus* (London, 1935).

32. Gustav Adolf Platz, *Die Baukunst der neuesten Zeit*, Propylaeen Kunstgeschichte (Berlin, 1927).

33. Leopold Ziegler, *Florentinische Introduktion zu einer Philosophie der Architektur und der Bildenden Kuenste* (Leipzig, 1912).

34. Max Unglehrt, *Allgemeine Architektur Probleme* (Leipzig, 1923).

35. Herrmann Eicken, *Der Baustil. Grundlagen zur Erkenntnis der Baukunst* (Berlin, 1918).

36. Rudolf Metzger, *Die dynamische Empfindung in der angewandten Kunst* (Jena, 1917).

37. Theodor Lipps, *Aesthetik* (Berlin, 1903-06).

38. Josef Frank, *Architektur als Symbol* (Vienna, 1931).

39. Emil Kaufmann, *Von Ledoux zu Le Corbusier* (Vienna, 1932).

40. Hermann Soergel, *Einfuehrung in die Architektur Aesthetik* (Munich, 1918). Same, *Theorie der Baukunst* (Munich, 1921).

41. Paul Klopfer, *Das Wesen der Baukunst* (Leipzig, 1920). Same, "Geruest und Masse." Ein Beitrag zum Stilproblem der Baunkust, *Schriften der Schatzkammer*, No. 1, (Weimar, 1921). Same, "Die beiden Grundlagen des Raumschaffens," *Zeitschrift fuer Aesthetik und allgemeine Kunstwissenschaft*, Bd. XX.

42. Leo Adler, *Vom Wesen der Baukunst. Die Baukunst als Ereignis und Erscheinung* (Leipzig, 1926). Same, "Theorie der Baukunst als reine und angewandte Wissenschaft," in *Zeitschrift fuer Aesthetik und allgemeine Kunstwissenschaft*, Bd. XX.

43. Fritz Schumacher, "Das bauliche Gestalten," in *Handbuch der Architektur* (Leipzig, 1926). Same, *Grundlagen der Baukunst* (Munich, 1919). Same, "Die kuenstlerische Bewaeltigung des Raumes," *Zeitschrift fuer Aesthetik und allgemeine Kunstwissenschaft*. Bd. XIII, 1919. Same, *Zeitfragen der Architektur* (Jena, 1919).

44. Paul Fechter, *Die Tragoedie der Architektur* (Jena, 1921).

45. Otto Schubert, *Architektur und Weltanschauung* (Berlin, 1931).

46. Friedrich Ostendorf, *Sechs Buecher vom Bauen* (Berlin, 1913).

47. Very close to Ostendorf's concept are, without much of a theoretical formulation, the extremely influential writings by Paul Schultze-Naumburg, *Kulturarbeiten*, Bd. I: *Hausbau* (Munich, 1906) and Paul Mebes, *Um* 1800 (Munich, 1920).

48. Hermann Hinselmann, *Vorstudien ueber koerperbildende Architektur*, Dissertation, (Cologne, 1925).

49. Wilhelm Worringer, *Abstraktion und Einfuehlung* (Munich, 1921).

Even Hans Sedlmayr, *Verlust der Mitte* (Salzburg, 1948) develops his theory of the two revolutions against architecture (the first at the time of the French Revolution—Ledoux—; the second, between 1900 and 1920) on the axioms that the basic stereotom forms are also the basic architectural forms. Thus he parallels the attempts of the *Jugendstil* "to fill dead matter with organic movement" ("*Erweichung des Tektonischen*," *i.e.*, the softening up of the tectonic) with the "fight against gravity," by Le Corbusier, Buckminster-Fuller, and with the dissolution of inner space into outer space by Frank Lloyd Wright and Mies van der Rohe. Actually, the tendencies of these three movements are entirely different.

50. Albert E. Brinckmann, *Platz und Monument als kuenstlerisches Formproblem* (Berlin, 1908). Same, *Deutsche Stadtbaukunst in der Vergangenheit* (Frankfort a. Main, 1911). Same, *Plastik und Raum als Grundformen kuenstlerischer Gestaltung* (Munich, 1922). Same, "Erziehung des Raumsinnes," in *Zeitschrift fuer Deutschkunde*, 40. Jahrgang, 1926.

51. Paul Frankl, *Entwicklungsphasen der neueren Baukunst* (Leipzig, 1914).

52. Otto Hoever, *Vergleichende Architekturgeschichte* (Munich, 1923).

53. Eugen Ehmann, *Der moderne Baustil* (Stuttgart, 1919).

54. Paul Zucker, "Kontinuitaet und Diskontinuitaet, Grenzprobleme der Architektur und Plastik" *Zeitschrift fuer Aesthetik und allgemeine Kunstwissenschaft*, Bd. XV, 1921. Same, "Der Begriff der Zeit in der Architektur," *Repertorium der Kunstwissenschaft*, Bd. 44, 1924.

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THE EARLY DOMESTIC ARCHITECTURE OF THE SAN FRANCISCO BAY REGION

Today's appreciative and fairly general interest in the creative work of the recent past, particularly on the part of architects, seems a somewhat surprising development in view of the passionate denial of anything old which was inherent in the young modern's manifesto. Whatever the cause of this interest — whether an impoverished inspiration, or a sincere and wholesome search for true values — it is both real and profound, and it offers the hope that from it may evolve an architecture whose prime tenet is *regional* suitability.

In studying the early domestic architecture of the San Francisco Bay Region, this characteristic of regional suitability stands out as a common denominator. Though the work of one architect may — and often does — show signs of individual genius quite superseding that of others, the factors which can be found in the work of all are those which, when considered fundamental, produce work of merit in whatever locality they are applied.

These factors are the place — its topography and climate; its people — their temperament and their needs; and its locally available materials. To these the architect brings his own individuality as the consolidating influence.

In the case of the San Francisco Bay Region, it is difficult to select any one of these factors as pre-eminent. The residential work of the architects of fifty years ago — and more — represents the kind of synthesis of all three which could only result from their combination. Why design a house to exploit a view (the Bay Region abounds in views) if the topography does not permit its viewing? Why plan a house to permit easy use of outdoor areas if the climate for three-fourths of the year does not permit its use? Why use imported materials when locally available materials are eminently suitable to both the building's construction and its character?

The topography is indeed dramatic, with views — either panoramic or intimate — from most if its residential sites. That the steep sites themselves are both contributory to the views and assistant to their enjoyment is part of the natural qualifications of the place. The climate, although cool on the average, often has warm sunny afternoons despite earlier and later fog. As characteristic of the place as its capricious climate is the paradox of abundant water — the Bay — lapping at the feet of sun-burnt, parched hills, turned brown before summer has well begun.

Even though the place can effectively provide possible answers for all of these questions, there must also be acceptability by the client or the project never achieves existence. In this regard, today's Bay Region's architects consider themselves blessed with the "best clients in the world," and there is ample evidence that their earlier counterparts were similarly endowed. Certainly they are blessed with clients whose minds are adventurous, whose liberal acceptance of advanced ideas has made possible the kind of architectural work, particularly in the domestic field, of which the world is becoming increasingly aware. This tradition of open-mindedness is an inheritance from the Bay Region's first period of architectural flowering, and the tradition itself grew from the character of California's first settlers, drawn to the new land by their own bold, adventurous, imaginative selves.

It is clear, in studying the domestic architecture of the Bay Region that the interest in the work of the Bay Region architects of today exists largely because it is founded on the work of the earlier generation of architects. It is this generation of 50 years ago — and even their predecessors — whose appreciation of the peculiarly local possibilities and needs of the region produced buildings that remain as interesting today as they were advanced when they were first built. Although a thorough survey of the background of Bay Region Domestic Architecture is not here intended, it is possible to point out the variety of the work of that earlier day, and once again to celebrate the names of architects whose work and personalities were part of a continuing tradition which insisted

on designing to meet local needs and on an unusually vital fellowship with others of their profession.

There has been for some time an argument as to whether or not there is a "Bay Region Style" of architecture. The individualism of each architect is almost enough reason in itself for doubting that there is such a thing, and the whole idea of a Bay Region Style should indeed be gravely questioned. It is true that there is a basic similarity not only in exterior appearance, in construction, and in plan approach, but this is due to the greater availability locally of certain materials, to the similarity of architectural program, and to a basic concept of design. The last is undoubtedly the most important of these considerations because, without ever having formalized a credo, architects of the Bay Region have for fifty years or more, designed buildings — but more especially dwellings — with the same fundamental principles in mind. It was natural to follow accepted construction practice in a mild climate where structure could be simple and, according to Eastern standards, even flimsy. Redwood was easily obtained from the nearby forests and it was natural to use it because of its availability and inexpensiveness. Nevertheless, these factors contribute only a surface similarity; there is no 'style,' as this is understood in classic definition.

All these factors do, however, contribute to a regional quality that is much more important than is any stylistic quality. It is a quality which can be found, varying with the individual architect and with the location, from the Mexican border to the Canadian line — in other words, along the Pacific Coast. But it is not to be found extensively in other than domestic work, and rarely in the monumental structure. That this quality is noticeably found along the coast is no doubt due to the prevalence in that area of wood as a building material and to the informal manner of living usual in this part of the country. The relation between the various parts of the Pacific region is more noticeable in the work being done today than in that done in earlier days, a good deal of which, particularly in the Northwest, was of the frontier type. In areas such as San Francisco, where settlement was large and development rapid, this early and simplest kind of building was relatively soon supplanted by a more intentional type, which in turn had its influence on the early designers and builders.

The earliest houses of which we have record are those of Spanish officials (such as the one at San Pablo, built in 1837 and known as the oldest house in the Bay Region) and some remaining buildings from the "gold rush" days; an adobe building at Angel's Camp, long and low, its "pipe columns" supporting the porch roof; a simple board and batten structure in Sonoma, the lines and texture still preserved; a two-story inn whose balcony proclaims it an early prototype of the currently popular Monterey style. These are the ancestors of the California "ranch house" and the Monterey dwelling, and they represent part of the inspiration that took hold of the Bay Region architects of fifty years ago.

The Spanish mission churches had their part, too, in the stimulation of ideas; the unstudied simplicity with which the early missionary padres met local needs, using local materials and local methods, began a tradition which continues strong today. Thinking in terms of local needs — predicated on climate, terrain, mode of life, and such peculiarly local possibilities as the mild climate, construction an Eastener would consider flimsy, outlooks of unusual beauty, sites that would appall the unimaginative mind—informal living has become the prime requisite, and style has taken its rightful place as a result rather than a cause.

That other cultures have contributed to the development of the Bay Region's domestic architecture it would be idle to deny. Japanese, Swiss, Spanish, all have had an effect on residential design in this region. In regard to today's architecture, mention should also be made of the influence of the "international" school of design.

Although the early ranch houses, and some recent work by contemporary architects, seem to show a certain resemblance to the Japanese houses, this is due to some similarity in the climate and topography of the two localities. Bay Region residents, like other Westerners and like the Japanese, like to come and go from their gardens with little sense of barrier between interior and exterior, and in minimizing the barrier, their architects have borrowed from the Orient another tenet: the use of large glazed openings as frames for views either intimate or panoramic. Early board and batten ranches of Northern California, and their Southern California adobe counterparts, fit into hillside contours much as do the hillside dwellings of the Oriental countrysides. This parallel in climate, site, and material (frame construction is common), apparent in the early buildings, is even more marked in later residential work.

Although the indigenous building is an unmistakable source of the architect-designed house, other influences were brought into the area during the later nineteenth century period by the quickly growing population with its varied backgrounds and tastes. It was inevitable that the Spanish heritage should put its mark on residential design by its sensible meeting of climatic needs. (Later, this influence was extended to the exterior design of the house, and the rash of "Mediterranean Style" spread over not only those areas whose historical connection with the style might have excused its use, but areas without even this slight justification.)

Equally inevitable was the impact of Oriental ideas, since until fairly recent times, hordes of immigrating Oriental workers poured through San Francisco, and

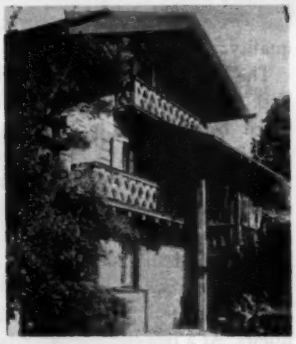
Angels Camp, California (c. 1849), *Roger Sturtevant Photo.*

All Photos Courtesy San Francisco Museum of Art

Don Juan Bautista Alvarado Residence, San Pablo, California, (1837).

Residence (now Lambda Chi Alpha fraternity) Berkeley, California, A. C. Schweinfurth, architect (1895).

J. H. Hopp residence, Ross Valley, Marin County, California, Bernard Maybeck, architect (1906).



Residence for Mr. W. H. Rees, Berkeley, California (1906).

Henry W. Taylor residence, Berkeley, California, Louis Christian Mullgardt, architect (1908).

were followed somewhat later by other more literate groups; and from San Francisco went travelers who brought back ideas, gleaned from visits to China and Japan, on the use of free and open plans, large panels which would open up rooms to views, the easy relationship between indoors and outdoors.

It was the impact of these new ideas on men from Eastern cities, trained in dignity, and disciplined on

classic forms, familiar with the old, but youthful in their adventurous outlook toward the new, that produced the early and still remarkable residential work of the Bay Area. It is interesting to find that one of the first of these men of whom there is record, and of whose work examples survive, was not actually an architect, but a Unitarian minister, Joseph Worcester, who came out from the East to the Bay Area in the 1870's. "The names of the earliest periods," remarks Bruce Porter, himself a contributor, through his taste and artistry, to the cultural development of this region, "are utterly lost; but up to the time of the fire there remained examples of an architectural rightness and dignity we have never again attained under changing fashion." Though he was not a trained architect, Joseph Worcester's work had this quality.

The Rev. Mr. Worcester designed his own house, on an East Bay hill in Piedmont. Bruce Porter, who remembered being taken to it when an eight-year-old boy, describes it as a simple redwood shingle structure "of much charm and taste." Although this house no longer survives, two others which he designed still stand in San Francisco. One is the home of the architect, Eldridge Spencer, and the other is just next door; both built in 1895. These two houses attest to Worcester's design ability, his feeling for proportion, and his taste for simplicity. At a time when most Eastern architects — and, of course, a great many Western architects as well — were producing a riot of turreted, many-windowed mansions, overlaid with gingerbread, Joseph Worcester was designing these simple cottages with a freshness and restraint that, for their period, are all but incredible. According to Bruce Porter, artist, designer, poet, dilettante, and intimate friend of the architect Willis Polk, it was to Worcester that hopeful young architects, journeying West to seek their fortune, came for advice, and it was to him that they owed their thorough grounding in good taste and simplicity. Hence it is possible that to him, in some measure, can be credited some of the underlying philosophy of architectural design in the Bay Region.

It is interesting to note that of the group of architects who fifty years ago put their imprint on the region, all but one — the only woman, Julia Morgan — came from elsewhere, were educated and largely trained in other parts of the country. Most of the famous names of that period originated in the East, and Boston drew them either for education or for training under established architects. Bernard Maybeck, A. C. Schweinfurth, Ernest Coxhead, John Galen Howard, and Louis Christian Mullgardt, — names now almost forgotten except for an occasional mention — though not all natives of Boston, lived there during part of their educative period or during their apprentice days, either during the time that Henry Hobson Richardson was still active or just after his death. At least one of them, Louis Mullgardt, came briefly under the direct influence of Richardson, working in his office for a short time after graduating from Harvard, then going to Chicago where the fire of Sullivan's genius was at its height, to work in the office of Henry Ives Cobb.

Of this group, the name best known even in the Bay Region is that of Bernard Maybeck. Although the work of Maybeck is undoubtedly the most interesting and in many ways the most inspiring, it would be unfair here to dwell on him and his work, since the exhaustive researches of Jean Murray Bangs have resulted in a book (eagerly awaited, but as yet unpublished) in which for the first time the range of the work of this remarkable man and its place in the development of American architecture should be made clear. It would, on the other hand, be unfair not to call attention briefly to certain outstanding characteristics of his work which have influenced the tradition of architectural design in the Bay Area. While the triumph of Maybeck's genius is undoubtedly his First Church of Christ Scientist in Berkeley, built in 1910 — a building that defies description either verbal or photographic and which must be experienced no less than seen — the houses designed by him (of which the Bay Region is fortunate to have a considerable number in its various counties) reveal a mind not only progressive far ahead of his time in use of space, but inventive as well in technical innovation and use of materials, and a great freedom from the binding influence of architectural dogma.

One of the most interesting characteristics of these Bay Area architects is their complete individuality, a characteristic so inherent that though many influences touched them, and though they found inspiration in these various agencies, each architect yet remained himself, his mark indelibly impressed upon his work. This was particularly true of Maybeck who could joyfully make Gothic quatrefoils somehow his own; could, with his poetic imagination, detail columns and pilasters whose derivation could be considered Corinthian but whose actuality is entirely Maybeck's; and could so interpret the Swiss mountain house in terms of Bay Region possibilities that it is the interpretation which is paramount, and it is Maybeck, not the style, who is master.

John Galen Howard, a native of Massachusetts, came to San Francisco early in the century. After graduating from MIT and the Beaux Arts, he worked in Boston and in New York, where he was a member of the firm of Howard and Cauldwell. Not very long after his arrival in the West, he was appointed head of the school of architecture at the University of California, succeeding Maybeck who had been the founder and first member of the school's faculty. Although Howard is best known for his buildings on the University of California campus at

Charles W. Fore residence, Piedmont, California, Louis Christian Mullgardt, architect (1908).

Detail of window design, Fore residence.

Charles Keeler residence, Berkeley, California, Ernest Coxhead, architect (1908), *Lew Tyrell Photo.*

Howard residence, Berkeley, California. Street and garden elevations. John Galen Howard, architect (1912). Additions in 1927, Julia Morgan, architect, *Lew Tyrell Photo.*

Detail, Joy residence, Berkeley, California, Julia Morgan, architect (1910), *Lew Tyrell Photo.*

Moffitt residence, Piedmont, California. Willis Polk, architect (1914).

Berkeley, his office did execute several residential commissions during Howard's early years in the Bay Region. These were never numerous, and there now remain but two in Berkeley — others were destroyed in the disastrous Berkeley fire of 1923 — to attest to the character of his domestic work. Another has been unrecognizably altered. One, the Gregory house, was designed and built in 1908 in three stages (the prototype of the "growing house!") and in its design not only Howard but two of his associates, Ira Hoover and William C. Hays, played a part. The long, low, simple lines and the respectful use of wood, give the house an indigenous air that reflects the early "rancho," and despite its additions, it remains essentially simple, though it now includes considerable in the way of accommodations. The only other house extant is the one Howard did for himself in 1912, now the home of Professor Walter M. Hart, for which Julia Morgan designed a library addition in 1927. This large building is set on an extremely difficult site, a steep hill at the curved intersection of two streets.

The only California-born member of this group was Julia Morgan, the first woman ever to be admitted to the Ecole des Beaux Arts, a pupil and later an associate of Maybeck's, and architect of over seven hundred houses in California, and of many large structures, including the Hearst mansion at San Simeon, the Berkeley Women's City Club, the Honolulu YWCA, and the Western Women's Club in San Francisco. In her hands a house plan was just as much a problem in space relationships as it was in Maybeck's, but the difference in temperament resulted in a less whimsical but equally pleasant interior atmosphere. Like Maybeck, in whose office she worked and with whom she was associated on the Hearst Gymnasium for Women at the University of California, she was unafraid of ornamentation, and her education in the classic architectural styles served as an impetus to design rather than a direct source of motif. Thus she made use of derivative material which was still wholly hers in character, choosing it according to its appropriateness for the house or building in question. Her early houses, mostly of redwood shingles, although stylistically reminiscent, partake of that same individuality which was so outstanding a characteristic of this group of architects, so that the best classification for her domestic works is that it is a "Julia Morgan house."

The name of Louis Christian Mullgardt, once well known in both this country and abroad, is remembered now mainly by his still surviving contemporaries. The "Mullgardt Court" was the name by which was generally known the handsome and exuberant court he designed at the 1915 Panama Pacific International Exposition, though officially its title was the "Court of Ages." At the time that this exhibition opened, Mullgardt had been in California approximately ten years, yet in that brief time he had established himself as an architect of individuality, of great imagination and inventiveness, an "architectural innovator" as Herbert Croly, then editor of the *Architectural Record*, spoke of him after meeting him in 1911. Mullgardt's use of color as an integral part of his design is of particular interest in view of the fact that this possibility has even now been incompletely exploited.

Although by no means the first architect to design his buildings in direct relation to their natural surroundings, Mullgardt certainly emphasized, by "moulding his houses to their sites" a principle now become almost axiomatic. It is most unfortunate that the chief example of his particular ability, the Henry W. Taylor estate in Berkeley, is no longer in existence, having been torn down to make way for a real estate development. Pictures of this house (built in 1908, and situated on a hilltop with an unimpeded outlook toward both the Berkeley hills and the Bay) were published in 1911 in the *Architectural Record* and in the *Architect and Engineer* in 1914, and, except for the original color rendering by Mullgardt himself, this record (totally inadequate by today's standards of publishing) is all that remains of what would have been one of the monuments of Bay Region architecture. The plan was exceedingly open, one area flowing into another but with well-devised communication, and the fenestration produced an amazing quality of light without any excessive penetration of walls. Although the description of this house is of necessity from hearsay, it is possible to document these latter attributes by a visit to others of his houses still existing.

In regard to his use of color, Mullgardt himself said, "We are beginning to realize that it is the white wall which makes the blue sky seem more blue than it is, and makes the red roof more red. In this are the first signs of an awakening which will be but the forerunner of an ultimate acceptance of the complete gamut of color."

Mullgardt travelled abroad extensively and for a time practiced in London (where he was the architect for the Savoy Hotel), but, American-born, he returned to this country and left it again only to go to Honolulu as architect for several buildings there.

There was, however, one transplanted Englishman among the Bay Region architects of the early part of this century. He was Ernest Coxhead, who came to this country in the early 1880's, established a practice in Los Angeles and then moved to San Francisco. He was the architect of a number of buildings for the Telephone Company, and of quite a few churches, but was probably best known for his residences. Early examples of his domestic work are of frame construction, surfaced in redwood shingles. Their exterior aspect, although reminiscent of the English cottage, was an individual, very graceful interpretation of an intimate residential form.

There is a quite Anglican dignity about his houses, whether in town or suburb, but the idea of applying the adjective "quaint" to them dies before the word reaches the tongue. One of the most interesting of his houses is the one he did for Bruce Porter in 1904, on an irregular lot, 92x16x26 feet in dimension. Here he almost literally "made" space and provided an atmosphere of elegance and spaciousness in an area more suited to a cabin.

The designer of the building that most astounds young architectural visitors to San Francisco, the Hallidie building with its glass front, was Willis Polk, a native of Kentucky and the son of an architect. Polk grew up in St. Louis where his father had established his office, and began his architectural work in the office of Jerome Legg of St. Louis. When his father moved his office to San Francisco in 1888, the younger Polk came also, though he left soon thereafter for a two-year European trip. When he returned he went into the office of Daniel Burnham in Chicago. He returned to San Francisco, however, and when Burnham was invited to plan an improvement program for that city after the 1906 earthquake and fire, Willis Polk designed the bungalow, for Burnham's use, which was erected on Twin Peaks. Of his larger works, the famous Hallidie building is probably the most interesting, with its glass curtain wall, a daring innovation for its time (1918). If his domestic work reveals less of innovation, it yet, as in the James K. Moffitt house in Piedmont, built in 1914, offers remarkable examples of the integration of architecture, landscape architecture and interior design. A lavish and elegant detailing characterizes his residences and often, according to Bruce Porter, the measure of this lavishness was the client's pocketbook. If the client wanted a lush and lavish decor, Polk and Porter, who often collaborated, gave it to them. In the Moffitt house, however, there is evident a restraint and simplicity, prescient of the aims of a much later day. Proportions, space relationships, indoor-outdoor communication, site planning were as important to Polk as were the elegant and extravagant decorative motifs.

Two other names figure in the architecture of this time: A. C. Schweinfurth and Greene and Greene (the brothers functioned together so closely that their work can be taken as that of one person). The bulk of the practice of these two firms was done elsewhere than in the Bay Region, yet because there exist examples of their work in this region, they should be mentioned in any discussion of the region's domestic architecture. Of the two firms, the work of Greene and Greene was by far the more remarkable, and the more influential, though it consists of a single example, the Thorsen house in Berkeley. This house, with its flush ceiling lights, electrically operated flush panel doors, its patio enclosed by the L-shaped house, and its beautifully designed details is both contemporary to today and anachronistic: the former because of the basis on which it was planned, the latter because of its workmanship, whose quality may never again be equalled in this country.

Of A. C. Schweinfurth's work there are three notable examples, the Hearst hacienda at Pleasanton (to which Julia Morgan later added), a residence in Berkeley now a fraternity house, and the Unitarian church on Bancroft Way in Berkeley (1898). This last is mentioned among the residential work because of its domestic character. The Hearst hacienda, commissioned by Mrs. Phoebe Apperson Hearst, is a splendid example of the adaptation of Spanish patio design to the California climate and way of living, and in that respect it is interesting to note that this ranch was built in 1895 — long before "indoor-outdoor" living became a common expression and the first requisite of a client. The fraternity house in Berkeley (built about 1899) is of brick, Teutonic in its derivation, but individualized by the combination of brick and massive redwood beams. Its redwood panelled interior and open plan reflect the informal living of the region.

This necessarily cursory survey of the Bay Region's early residential architecture can only mention in passing the other factors which helped to make possible the quality of this work, and contributed to what is perhaps its most enviable characteristic: its timelessness. These factors were — and still are — social, economic and cultural. San Francisco's historic growth in population and in geographic spread, its passion for culture in the midst of its concomitant pioneer roughness, its almost fantastic surge of wealth, drew to it people whose creative urge was inseparably bound up with an adventurous spirit, an emphasis on the individual and a resultant originality in thinking. This is not to imply that such a combination of forces was nowhere else to be found but in the Bay Region. It is, however, apparent that in this region these forces were pronounced and persistent.

Perhaps the most interesting fact to emerge from these brief sketches of the early Bay Area architects is that they came from different places, bringing with them the ideas which a variety of influences had impinged on them, and that having absorbed these influences they felt in no way obligated to duplicate the work of any former style. Perhaps even more important than these is the fact that in their work they expressed a clear and unashamed recognition of a romanticism inherent, though sometimes latent or unadmitted, in each of us.

BERKELEY, CALIFORNIA

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CARIBBEAN COLONIAL ARCHITECTURE IN JAMAICA

The West Indies were the first part of the new world to be visited by Europeans, and in the four hundred and fifty-odd years that have elapsed since Columbus saw them, Spaniards, English and French, Dutch and Danes, and latterly North Americans, have scrambled and fought for them, occupied them more or less with their own people, but not so much to found new nations as to get gold or something that could be exchanged for gold. The islands originally were, and to a large degree still are, an earthly paradise, in spite of the destruction wrought by hurricane, earthquake, and the greed of man.

With the possible exception of Cuba, there is less sense of a national artistic character than on the mainland of Central or South America, and even in Cuba there is no such nationally integrated development of colonial architecture as in Peru or Mexico. In its place there is a lighter, gayer, more diversified architecture that appears in all the islands and in the mainland areas contiguous or commercially related to them, that while showing various national origins, impresses one as belonging to the whole Caribbean area rather than to any one colonial enterprise. This quality is more pronounced in those parts which have passed from nation to nation than in those which, like Cuba and Puerto Rico, remained for centuries in Spanish possession. Perhaps, too, in those areas settled by Northern Europeans, we can see a greater necessity to modify their traditional building habits than in those occupied by the Spanish whose architecture was already adapted to the requirements of a hot climate.

In the scope of this paper it is impossible to survey all the developments in this area (of greater actual extent than is often realized), and I can only hope to point out a few of the general characteristics from a short account of work in Jamaica. Jamaica was Spanish for a hundred and fifty years before it became English in 1655. It neither changed hands as often as the Lesser Antilles nor was as consistently the province of one nation as Cuba. One must note, however, that today practically nothing except place names remains from the Spanish occupation, although ruins of their buildings were still visible in the eighteenth century.

The heyday of the West Indies came in the late eighteenth and early nineteenth centuries. Then they were the "prize" most highly contested by Spanish, French, and English. (In 1803 the West Indies accounted for one third of all British exports and imports.) The product that made the prize so desirable was sugar; sugar produced with slave labor. The end of this period of prosperity came with the abolition of slavery, in 1834 in the British Colonies.

Looking at the architecture of this period in Jamaica, one can distinguish several general types of building. The more official structures built for the government or the church are those that follow most closely the style of the old world. The houses, both town and country, and the commercial buildings which are often undifferentiated from houses, depart more from European precedent and are closely related to those built throughout the Caribbean. They are, perhaps, the most interesting expression of the period.

The chief towns of Jamaica have had a sad history of destruction by earthquake, fire, and hurricane. Sevilla Nueva, the first Spanish capital was abandoned; Port Royal, once the richest city in the West Indies, was destroyed by earthquake in 1692; Spanish Town, the next capital, has been half derelict since 1872; and Kingston, the main city since 1692 and capital since 1872, has had a series of disastrous fires culminating in almost complete destruction by fire and earthquake in 1907.

At Spanish Town, on the site of the previous Spanish capital, St. Jago de la Vega, the eighteenth century government group survives in part (Fig. 1). The main buildings are grouped about an open square with King's House (the Governor's residence) on the west, the House of Assembly opposite, the Courts to the south, and the Rodney Memorial to the north. It still presents the finest group of its kind in the West Indies. King's House, the principal building, is just a façade today (Fig. 2), the interior with some good Georgian detail having been burned in 1925. Like all the buildings of the group, it is of brick now painted a strong yellow with local stone for trim. The yellow and white combination is now common

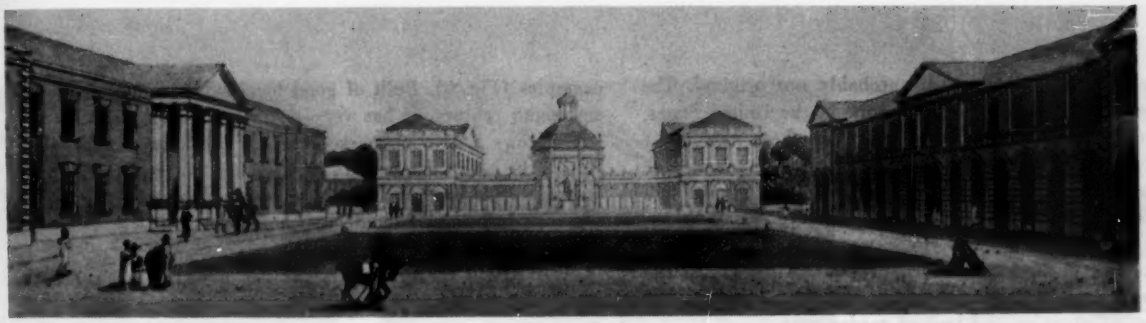


FIG. 1. Spanish Town, King's Square. From James Hakewill, *Picturesque Tour of the Island of Jamaica, from Drawings made in the years 1820 and 1821*, London, Hurst and Robinson, 1825. *(Courtesy Princeton University Library).*

FIG. 2. Spanish Town, King's House.

FIG. 3. Spanish Town, The Rodney Memorial. *A. Packer Photo, Kingston.*

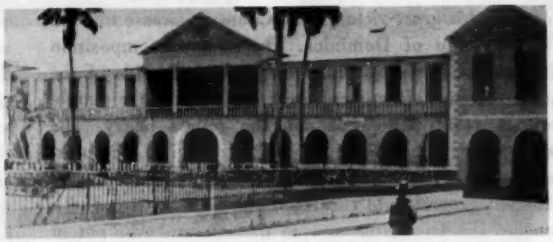


FIG. 4. Spanish Town, House of Assembly.

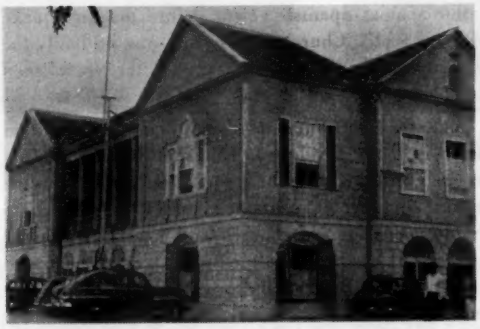


FIG. 5. Montego Bay, Courthouse.

FIG. 6. Montego Bay, Parish Church.

FIG. 7. Kingston, Intersection of King and Harbour Streets. *From Hakewill.*

FIG. 8. Spanish Town, House and Shop.

in the island though it is probably not original. The detail is similar to colonial work in the United States, though often coarser, perhaps because there were fewer experienced craftsmen and more work was done with slave labor. The handsome portico has columns and pilasters of Portland stone and once had the Royal arms in the pediment. King's House was built in 1760-62, the work of an architect named Craskell. Although an imposing structure, deficiencies are to be noted in the closeness of planning and lack of garden area.

On the north, between two blocks for public record offices, is the Rodney Memorial (Fig. 3), built to commemorate his great victory over Count de Grasse in 1782 off the island of Dominica. The general composition with inward sweeping colonnade makes this side of the square the most effective of the group, though the temple itself is a bit ponderous and the reliefs heavy. The statue under the temple is by the English sculptor, Bacon, and presents the admiral "dressed in the habit of a Roman general, and furnished out with buskins and a truncheon."[1] The statue arrived in 1788 and was put in place December 13, 1792.

The Courthouse opposite is of the late eighteenth century, the plainest building in the square. Its chief interest lies in its octagonal entrance pavilion reflecting the shape of the Memorial across the Parade. The House of Assembly (Fig. 4) consists of three pavilions connected by a fine arcaded passage or "piazza" along the front. Above this was originally an open terrace, later covered by a gallery with delicate wooden columns (Fig. 1), and now unhappily walled-in. The Hall itself was fitted with polished mahogany benches and is said to have been a handsome and well-aired room.

The smaller government buildings such as the parish halls can be illustrated by an example from Montego Bay (Fig. 5), one of the important centers on the north side of the island, which was, in 1793, a "flourishing and opulent town of 225 houses."[2] The Courthouse and Parish Hall, built in 1803, is a stone and wood structure painted yellow, with arcades on the ground floor and columned galleries above. Originally most of the windows had only louvred shutters instead of sash. The rusticated basement and Palladian detail relate it to work in England of half a century earlier. The preference for roofing each section of the building separately is a marked characteristic of Jamaican architecture.

Jamaica was divided into parishes on the English system, each with its church. In 1790 there were some eighteen churches or chapels on the island, mostly simple buildings, but a few had some claim to architectural elegance. The most important were those in Kingston, Port Royal, Spanish Town, and Montego Bay. The Parish Church of Montego Bay is one of the best surviving examples (Fig. 6). Built of good local stone in the late eighteenth century, it has very restrained classic detail and follows a plan of markedly cruciform shape, common in the island. There is a single western tower without a spire. Inside are fine mahogany pews and galleries and a great profusion of sepulchral monuments.

The Cathedral at Spanish Town was founded on the site of the previous Spanish church, but the present building dates from 1714 after the earlier had been destroyed in a hurricane. It has a similar cruciform plan with deep chancel and transepts, and is built of red brick. The windows are protected against the tropical sun by projecting gabled screens, one of the many devices by which air is secured without unwanted light and glare. The interior is an even vaster museum of funereal art than the church at Montego Bay. Death, especially from yellow fever, was much in the minds of the planters and they spared no expense to provide themselves with fine monuments. The walls are literally lined with marble memorials, the best of which is that to the Earl of Effingham, a onetime governor of Jamaica, by Bacon. On some of the plantations there were elaborate private mausoleums, but on the whole this taste produced no local art as the monuments were imported from England.

Of the other churches, the parish church of Kingston was ruined architecturally in the rebuilding after the earthquake of 1907, and that at Halfway Tree gothicized in the nineteenth century. The church at Port Royal is similar to that at Spanish Town. Before the earthquake of 1907 the Scotch Church in Kingston was probably the most important building not used by the established church.

In domestic and commercial buildings the Antillian character is more developed. Kingston was by all accounts an exceedingly attractive city at the end of the eighteenth century. It contained in 1790 some 1665 houses not counting warehouses and negro dwellings.[3] As late as 1851, Lady Emmeline Stuart Wortley recorded that there were "still very handsome streets with villa-like houses, veranda'd and terraced, running back from the road, and with gateways and gardens generally."[4]

The plan retains the character of the old city. It is a modified gridiron centered on a cross axis at the intersection of which was a public garden or parade. Long rectangular blocks are oriented with their narrow ends toward the sea, and the blocks themselves are split lengthwise by lanes, thus giving a whole network of streets leading to the harbor. The main business street, Harbour Street, runs along the front back a block from the wharves. In the days of prosperity it was a busy place in which all the nations of the Caribbean participated.

The lower part of the town was closely built as can be seen in a print of the intersection of King and Harbour

FIG. 9. Kingston, House in the Upper Town.

FIG. 10. Halfway Tree, House.

FIG. 11. Spanish Town, House.

All Photos by M. D. Ross unless otherwise noted.

FIG. 12. Bryan Castle, Trelawny. *From Hakewill.*

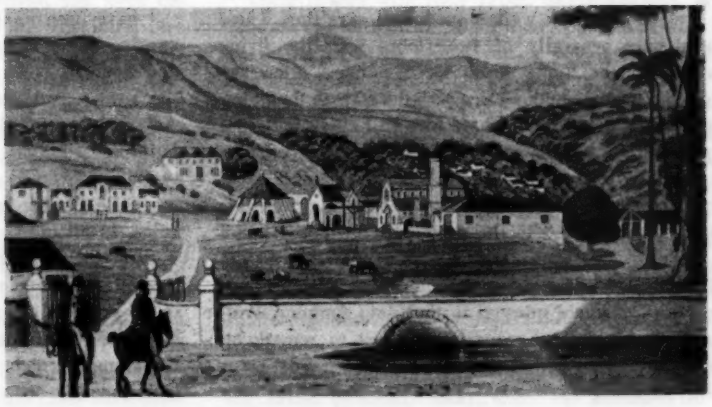


FIG. 13. Montpelier, Old Works, St. James's. *From Hakewill.*

Streets in 1825 (Fig. 7). The effect of its architecture is well described by Michael Scott in *Tom Cringle's Log*. He writes,

> The appearance of the town itself was novel and pleasing; the houses chiefly of two stories, looked as if they had been built of cards, most of them being surrounded with piazzas from ten to fourteen feet wide, gaily painted green and white, and formed by roofs projecting beyond the brick walls or shells of the houses. On the ground-floor these piazzas are open, and in the lower part of the town, where the houses are built contiguous to each other, they form a covered way, affording a most grateful shelter from the sun . . . On the floor above the balconies are shut in with a sort of movable blinds called 'jealousies' like large bladed Venetian blinds fixed in frames, and with here and there a glazed sash to admit light in bad weather when the blinds are closed.[5]

These shuttered galleries produced a surface lightness of appearance that was strange to, and not always pleasing to the European traveller. Some compared them to booths at a racecourse. They do, however, admirably serve to admit air without the sun's glare and are one of the most universally met features in West Indian architecture.

One interesting detail of old Kingston now seems lost entirely. From *Tom Cringle's Log*, again, we learn that, "most of the house in the lower part of the town are surmounted by a small *Look-out*, as it is called, like a little belfry, and usually furnished with one or more good telescopes fitted with green blinds."[6]

Few of these houses remain, but their typical features can be seen in older photographs and in the smaller towns. The light wooden columns, turned below and square above, follow the old type. Shutters still form the

bulk of the verandah wall with an occasional sash window. The roofs are generally hipped, with broken slope over the galleries, and crowned by a projecting ridge, a feature of Jamaican building alone. Due to the fact that the streets were unpaved and served as surface drains for the heavy rainfall, the houses stand on little "banks" above the street level, another feature not limited to Jamaica but found generally in the West Indies.

A house combining shop and dwelling, from Spanish Town (Fig. 8), has much of the old character and shows the fondness for multiple roof forms turned to the street. The Treasury and Customs House in Charleston, Nevis, B.W.I., is also so similar that it might be mistaken for an example from the old Kingston. Even today these features exist in the vernacular building in the islands.

In the upper part of the town the houses were more widely spaced and provided with gardens, front and back (Fig. 9). The front garden was raised and separated from the street by a brick wall topped with a railing. These houses were generally of two floors with the living quarters on the upper level. Deep porches often ran across the front in both stories with the stair to the upper level located in one end. There was no hall in the sense of passageway, but the center of the house was occupied by a gallery-like room, kept as dark as possible, with only borrowed light for the sake of coolness. From this room access was had to the various parts of the house by multiple doorways. Doors and windows were not rigidly differentiated giving the interior an openness and complexity of space unusual in that day. Anthony Trollope, one of several European travellers to remark on this feature, described them as presenting, "a delicious facility of losing one's way."[7] These suburban villas were generally built of wood, though the lower floors were of brick and the entrances paved with marble.

We have a contemporary description of such a house in the suburbs of Kingston in *Tom Cringle's Log*. He describes his visit to,

> a spacious one-storey house, overshadowed by two fine old trees, and situated back from the street about ten yards; the intervening space being laid out in a beautiful little garden, raised considerably above the level of the adjoining thoroughfare, from which it was divided by a low parapet wall, surmounted by a green painted railing. There was a flight of six brick steps from the street to the garden, and you ascended from the latter to the house itself, which was raised on brick pillars a fathom high, by another stair of eight broad marble slabs. The usual verandah or piazza, ran along the whole front, beyond which you entered a large and lofty, but very darksome hall, answering to our European drawingroom, into which the bedrooms opened on each side . . . advancing through this room you entered by a pair of folding doors, on a very handsome dining-room, situated in what I believe is called a back jamb, a sort of outrigger to the house, fitted all round with movable blinds or jealousies, and open like a lantern to all the winds of heaven . . .
>
> This room again communicated with the backyard, in which the negro houses, kitchen, and other offices were situated, by a wooden stair of the same elevation as that in front. Here the table was laid for dinner, covered with the finest diaper, and snow-white napkins, and silver winecoolers, and silver forks, and fine steel, and cut glass, and cool green finger-glasses with lime leaves floating within, and tall waxlights shaded from the breeze in thin glass barrels, and an epergne filled with flowers, with a fragrant fresh-gathered lime in each of the small leaf-like branches, and salt cellars with red peppers in them, etc., etc., all of which made the *tout ensemble* most captivating imaginable to a hungry man.[8]

One would like to have joined the party gathered in the piazza awaiting that dinner.

I have been unable to locate an example exactly answering this description, but many houses from Kingston and Spanish Town show the general features including the garden and verandah like that described by Scott. An example from Halfway Tree (now a community office building) suggests the general character (Fig. 10). The type is widespread and houses in Nassau in the Bahamas are quite similar save for the Jamaican projecting roof ridge. In all the surviving buildings we can be sure that most of the sash windows are later additions.

While shuttered verandahs are the most usual solution to the problem of ventilation without glare, other devices have been used. Little individual roofs or flaps are sometimes employed, but more interesting are the "coolers," little cage-like constructions of shutters advanced in front of the plane of the wall. They appear in examples from Spanish Town (Fig. 11) and give the simple Georgian architecture a very exotic air. Raising the roof near the top, or lifting a section of the surface, provides a means of ventilating the attic areas and is a feature that adds character to even the most ordinary service buildings.

The country houses on the sugar plantations or the grazing "pens" follow the same general type, but were often larger, and being surrounded by more land, more freely developed. Bryan Castle, Trelawny, the residence of the historian, Bryan Edwards, is a good example (Fig. 12). Many others were of wood, and aside from the features introduced to fit them to the climate, had little architectural elaboration. Halse Hall, Clarendon Parish is a surviving example of a type described by Matthew Gregory Lewis in 1816. He says,

> My own [house] is of wood, partly raised on pillars; it consists of a single floor: a long gallery called a piazza, terminated at each end by a square room, runs the whole length of the house, on each side of the piazza is a range of bedrooms, and the porticoes of the

two fronts form two more rooms, with balustrades and flights of steps descending to the lawn. The whole house is verandoed with shifting Venetian blinds to admit the air; except that one of the end rooms has sash windows on account of the sudden rains, which . . . are so heavy . . . and shift with the wind so suddenly . . . that all the blinds are obliged to be kept closed; consequently the whole house is in total darkness . . . except the single sash-windowed room. There is nothing underneath except a few store rooms and a kind of waiting hall; but none of the domestic negroes sleep in the house, all going at night to their respective cottages.[9]

The more pretentious houses were of stone. Large masses of roof and box-like verandahs give them a character that perhaps warrants the comment of Lord Frederic Hamilton that Jamaican "great houses" often resembled nothing so much as gigantic meatsafes. Life in the old days was luxurious, however, and even the plainest houses were filled with splendid furniture, rare china and silverplate. The amusements of the planters were limited to eating, drinking, and gambling. A contemporary witness said that they ate like cormorants and drank like porpoises. The result in architecture was the importance given to the dining room. It was often the largest room, and as in the example already mentioned, it was sometimes in a special wing. In the nineteenth century King's House, outside Kingston, the dining room was a separate pavilion, surrounded on all sides by arcades and connected to the main building by a covered passage. The eighteenth century officers' quarters at Up Park Camp also had a dining room, described as, "a large and handsome saloon standing alone in the lawn."

The outside stairs leading to the main floor were often monumental, supported on elliptical arches, and sometimes both stairs and verandah floors were of marble. The entrance gates to the estates were a favorite place for elaboration. They were adorned with fine ironwork and marble urns and sphinxes, imported from England, sometimes so enriched as to produce a misleading impression of the magnificence of the house.

The service buildings required for the slaves and the operation of the plantations formed an extensive group around the "great house." They were purposely kept close so that the work might be better controlled. A typical layout of this sort is seen at Montpelier, Old Works, St. James's (Fig. 13). On the left is the residence of the bookkeepers, then the overseer's house, on the knoll is the hospital, below and to the right is the cattle-mill followed by the water-mill, then the boiling-house and still-house, and far to the right are the trash-houses. Above and partly concealed by foliage are the cottages of the negroes. Many of these structures were of light wattle and wickerwork construction, suited to the climate, but unpretentious. Their charm was enhanced by the tropical vegetation and the fact that each negro house had its own garden. They appealed to the eyes of the person trained to appreciate "picturesque beauty" and seemed to suggest the "ornamental hermitages" of landscape gardens.[10] Even the necessary outhouses were of lattice construction, quite astonishing to English visitors. Some estates were provided with their own swimming baths, a luxury then almost unknown in Europe.

These houses with their raised living quarters, abundant air and delightful shade; their openness of plan and intercommunicating rooms, can be found widely spread throughout the islands. They appear in the Danish and French as well as the English settlements, and are closely paralleled by examples from our own southern states. A sugar plantation house from St. Croix, in the Virgin Islands or the Marine Superintendent's House in Port of Spain, Trinidad, would be equally appropriate to Jamaica. They have the same raised main floor, the upper structure of wood supported on brick piers, frequently connected by elliptical arches, and the same ingenious shutterings and lattices to protect the occupants from the tropical sun. Whitney Plantation, Louisiana, has a very West Indian scheme of shuttering for the main rooms on the raised principal floor. Only the chimneys of the Louisiana house would seem out of place further south.

Nowhere else among the various colonial architectures of the New World was the type of building developed that can show better adjustment to the climate and the way of life. In the Caribbean the architecture is both further removed from European precedent and more regional in character than in any other area. If it were possible to consider more examples from a wider range of site, these similarities and this regional consistency, as opposed to national style, would appear even more striking.

UNIVERSITY OF OREGON

1. Matthew Gregory Lewis, *Journal of a West India Proprietor*, London, John Murray, 1834, p.161.
2. Bryan Edwards, *History, Civil and Commercial, of the British Colonies in the West Indies*, London, Stockdale, 1794, p.206.
3. *Ibid.*, p.205.
4. Lady Emmeline Stuart Wortley, *Travels in the United States, etc., during 1849 and 1850*, New York, Harper and Brothers, 1851, p.456.
5. Michael Scott, *Tom Cringle's Log*, Edinburgh, Blackwood, 1833, I, p.183.
6. *Ibid.*, II, p.351.
7. Anthony Trollope, *The West Indies and the Spanish Main*, New York, Harper, n.d. p.224.
8. Scott, *op. cit.*, II, pp.333-5.
9. Lewis, *op. cit.*, pp.84-6.
10. *Ibid.*, p.157.

AMERICAN NOTES

CHARLES E. PETERSON, *Editor*
Old Custom House, 420 Chestnut Street, Philadelphia

Digging in the earth to uncover architectural secrets is getting to be a fairly common occurrence; but when the spade turns up something that Jefferson himself placed there you have good reason to give it a second look. We are happy to have A. Lawrence Kocher and Howard Dearstyne tell us of the astonishing discovery of the foundations of a building on the campus of the College of William and Mary, designed by Thomas Jefferson.

A. Lawrence Kocher is an architectural historian, editor and practicing architect. Howard Dearstyne, his assistant in the editing of architectural records at Colonial Williamsburg, is also a historian and architect. He boasts of having graduated from the Bauhaus at Dessau, a distinction held by only one other American. The two are preparing for publication an account of George Cook, photographer of the Confederacy, whose daguerreotypes and wet plates of the fifties and sixties were recently found stored in attics of houses formerly owned by him. . . . Ed.

DISCOVERY OF FOUNDATIONS FOR JEFFERSON'S ADDITION TO THE WREN BUILDING

By A. LAWRENCE KOCHER and HOWARD DEARSTYNE

It is well known that Thomas Jefferson was a student at the College of William and Mary in Williamsburg, Virginia from 1760 to 1762 and that, in later years, he was deeply interested in the fortunes of his alma mater. It is also known, though not so generally, that he proposed the enlargement of the Wren Building of the College, to make of the U-shaped structure which existed in his day (and which was restored in 1928-31) a rectangular building with an open square or quadrangle at the center.[1] It was not realized, however, until excavations were conducted immediately west of the Wren Building a few months ago that the foundations for a part of Jefferson's projected enlargement had actually been laid. It will doubtless render this discovery more interesting to the reader if, before discussing the recent excavations, we give a brief account of Jefferson's proposal and the precedent he had for making it, for it is known to us, and it was, without question, known to him, that the original builders intended the building to be quadrangular.

The construction of the Wren Building was started in 1695 and the main (east) part of it, together with the north wing, was substantially completed by the year 1700. It burned in 1705 and was rebuilt on the same site, utilizing portions of the old walls, and by 1732 the chapel wing had been added. It thereafter passed through many vicissitudes — among which were two more fires and two more rebuildings, each time on the same site and, as previously, using parts of the original walls — until, in 1928-31, it was restored to its second form, that of the building which existed between the fires of 1705 and 1859.

Plenty of evidence exists to prove that the original builders never intended the building to remain U-shaped. The following excerpt from a letter written on April 22, 1697, by the trustees appointed to supervise the building of the College to Governor Sir Edmund Andros,[2] indicates, as we have said, that the quadrangle or "square" was a part of the original design of the building: ". . . wee doe humbly certify to *yr* Excly that we have carried on the building of two sides of the designed square of the Colledge (*wch* was all wee judged wee had money to goe through with) and have brought up the Walls of the Said building to the roof *wch* hope in a short time will be finished . . ."

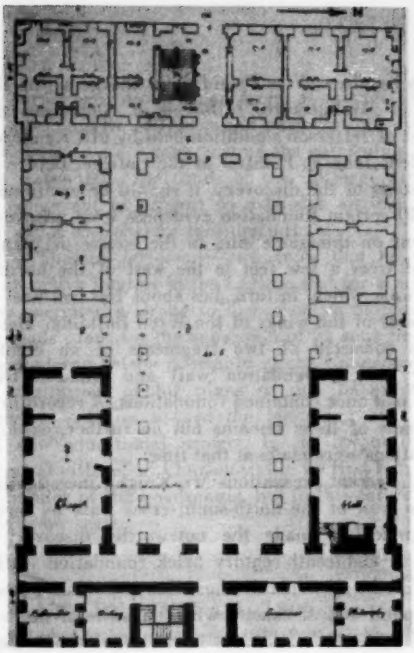
In his *The History & Present State of Virginia* (London, 1705; Book IV, p. 32) Robert Beverley makes still clearer the fact that the original conception of the builders of the College embraced the construction of a rectangular building or complex of buildings enclosing an open court:

> 43. The [College] Building is to consist of a Quadrangle, two sides of which, are yet only carryed up. In this part are already finished all conveniences of Cooking, Brewing, Baking, &c. and convenient Rooms for the Reception of the President, and Masters, with many more scholars than are as yet come to it; in this part are also the Hall, and School-Room.

If still further evidence is needed to prove that the original concept of the building provided for the creation of a structure built about a quadrangle we have it in visual form in a survey map of Williamsburg made by Theodorick Bland in 1699. This map, the original of which is in the British Public Record Office, shows the Wren Building, both the portion which had been erected when the map was made (the main, east part and the north wing) and the portion which was projected but

1. The writers of this paper are indebted to Dr. Earl G. Swem and to Mrs. Rutherfoord Goodwin for the historical references included here concerning the proposed construction of an extension to the Wren Building. Dr. Swem's compilation of documentary material on the Wren Building, which was published in the October 1928 issue of the *William and Mary Quarterly*, has proven a most valuable source of information. The numerous references to the Wren Building which have been assembled by the Department of Research and Record of Colonial Williamsburg, Incorporated, and which have been placed at the disposal of the writers, have also been of great help. The writers are also grateful to Mrs. Goodwin and Dr. Swem for reading the manuscript and making valuable suggestions concerning it.

2. Public Record Office, London. C. O. 5—1309

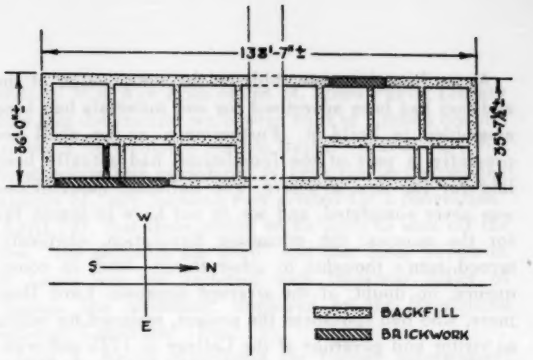


Plan by Thomas Jefferson, showing the Wren Building (blacked-in) and his proposal for an extension to it (all walls not blacked-in). The plan was drawn at the request of Lord Dunmore, royal governor of Virginia, between 1771-1772. The foundations for the westmost portion of the addition had actually been laid when the Revolutionary War put a stop to building operations. (Note: In order to make it easier to distinguish between the building which existed in Jefferson's time and the addition he proposed, the writers have taken the liberty of blacking-in the walls of the existing building. Except for this and the addition of the direction arrow, no changes have been made in Jefferson's drawing.)

which still remained to be built. A note on the map explains that "The black lines Represent the Buildings already Erected, the prickt [dotted] lines that part which is to be built." The portion of the building already built and the portion still to be built together form a structure almost square, with an open court at the center.

The reason why the projected second half of the building was not carried out after the main part and the chapel and refectory wings had been completed is evident from the trustees' letter — there was no money with which to build it.

The idea was not lost sight of, however, for Thomas Jefferson, who, we may assume, was acquainted with the original building project, at the request of Lord Dunmore, between 1771-1772 drew up a plan (now in the Huntington Library) for the completion of the quadrangle. A photographic copy of this plan is reproduced here. In it Jefferson shows the complete building complex — the part which existed at that time (the Wren Building with its two dependent wings as it stands today) and the contemplated addition. It will be observed that the addition roughly approximates in size the structure already



The above plan is a reduction of a measured drawing made of the eighteenth-century foundation walls (hatched-in) and of backfilled trenches, from which the brick walls had been removed (dotted-in), which were uncovered in September and October, 1950 by an investigation conducted jointly by Colonial Williamsburg, Inc. and the College. The disposition of the rooms in this plan, as indicated by the foundations for their walls, is reversed in respect to the location of these rooms in the Jefferson plan. If a tracing is made of this plan on transparent paper and turned over it will be seen that the foundations correspond almost exactly with the walls shown on Jefferson's plan. Ebenezer Hazard, a traveler who visited Williamsburg in 1778, saw the foundations and remarked in his journal that ". . . there is also the Foundation of a new Building which was intended for an addition to the College, but has been discontinued on Account of the Present Troubles . . ."

erected. It should be noted further that Jefferson intended the arcade of the west porch of the Wren Building to be continued about the court, and that a transverse passage be provided through the center of each wing to permit the crossing of the quadrangle in a north-south direction, after the fashion of English quadrangles.

That the College authorities, by the latter part of 1772, had carried Jefferson's scheme to the threshold of execution becomes evident from the following notice which appeared in the *Virginia Gazette (Purdie and Dixon)* on September 3 of that year:

> The Visitors and Governors of the College intending to make an additional Building to the College, have directed us, who are appointed a Committee for that Purpose, to procure an exact Estimate of the Expense thereof, to be laid before them at their next Meeting. Notice is therefore given, to all Persons willing to undertake this Work, that a Plan thereof is lodged with Mr. *Matthew Davenport*, who will be ready at all Times to show the same, and to whom they are desired to send their Estimates and Proposals, sealed up, on or before the first Day of *October* next.
>
> DUNMORE — LEWIS BURWELL
> PEYTON RANDOLPH — JOHN BLAIR
> RO. C. NICHOLAS

About two years later materials were being assembled to build the addition, as entries of November 8 and 9, 1774, in the Bursar's Book of the College indicate. These list the expenditure of £205 14s 8¼d for an order placed with John Norton and Sons of London, and the outlay is noted as "By New Building."

As we have just seen, bids on the construction of the addition had been advertised for and materials had been assembled to build it. Furthermore, as we shall see presently, a part of the foundations had actually been laid for the new structure. The building, nevertheless, was never completed, and we do not have to search far for the reasons: the oncoming Revolution, obviously, turned men's thoughts to other things. And, in consequence, no doubt, of the strained situation, Lord Dunmore, who had sponsored the project, resigned his office as visitor and governor of the College in 1775 and withdrew his support of it. We have no record of the deliberations which led to relinquishing the work, but we do have notices concerning matters which were a consequence of it:

> Agreed—that the Society lend out to each person present 10 Pds. Nails of such sorts as he chuses, giving to the Steward a Rec*t* for the same specifying the Quality, provided that the new building be drop'd for the present, & the College be not left without a sufficient quantity for ordinary Uses, in which point we depend upon the Undertaker Mr Saunders for information. (Faculty Minutes, June 25, 1776)

By 1780 the materials which had been assembled for the construction of the addition were being sold as the following "ad" from the *Virginia Gazette* (Dixon and Nicholson) of September 13 and 20, 1780, indicates:

> THE College has for sale, a considerable quantity of scantling, originally intended for an additional building. Any person taking the whole which cost about £500 in the year 1775, may have it upon the most reasonable terms.

That Jefferson's addition had been started when the war interfered with the construction operations has been recently established beyond peradventure by both documentary and archaeological evidence. The former consists of a passage in the *JOURNAL OF EBENEZER HAZARD'S JOURNEY TO THE SOUTH*, 1778, an original MS. in possession of the Pennsylvania Historical Society.[3] Hazard, who visited Williamsburg, describes the buildings of the College of William and Mary and, among other things, says ". . . there is also the Foundation of a new Building which was intended for an Addition to the College, but has been discontinued on Account of the Present Troubles . . ."

The archaeological evidence constitutes a striking verification of the statement made in this literary reference, since the foundations of which Hazard speaks have actually been uncovered. The excavations which resulted in the finding of these remains were conducted by James M. Knight, Colonial Williamsburg archaeologist, during September and October, 1950, at the direction of A. Edwin Kendrew, Vice President in charge of the Department of Architecture, following a conference on the subject of Jefferson's addition held by Mr. Kendrew with President John E. Pomfret of the College. Before giving the details of the discovery, it should be mentioned that in 1940 certain foundation evidences were uncovered by accident on this same site, in the course of planting a row of trees a few feet to the west of the north-south cross walk which, in turn, lies about 100 feet west of the west ends of the wings of the Wren Building. These evidences consisted of two fragments of an eighteenth-century brick foundation wall and filled-in trenches which had once contained foundations. A record drawing was made of these remains but no further, exploratory excavations were made at that time.

In the recent excavations Mr. Knight, investigating the ground west of the north-south cross walk by means of cross-trenching, made the noteworthy discovery of a series of eighteenth-century brick foundation walls and back-filled wall trenches whose size and relative positions correspond almost exactly with the walls of the western end of Jefferson's addition, as the latter shows these on his plan. In one respect only do these foundation remains deviate from Jefferson's layout — the plan drawn from measurements made of the excavated remains is reversed in respect to Jefferson's plan of the west end of the addition, that is, the rooms lying south of the east-west axis of the addition in Jefferson's plan are on the north side in the plan of the excavated walls and trenches, and the foundations for the walls of the rooms lying north of the axis in Jefferson's plan are on the south side in the archaeological drawing. A tracing of the plan of the foundations made on transparent paper, when turned over, corresponds with astonishing exactness with Jefferson's layout. The discrepancy between the two plans is actually a relatively unimportant one. The surprising thing is that no more radical changes were made in Jefferson's layout in the time which elapsed between the drafting of the plan and the beginning of the work of laying the foundation walls.

When test trenches were dug between the east side of these foundations and the west ends of the wings no evidence was discovered that foundations for the walls of the east-west building elements which were to have linked the western end of Jefferson's addition with the existing wings of the Wren Building were ever laid. The war probably put an abrupt stop to building operations after the foundations of the west end were completed. Apparently, no move was made after the close of the Revolution to resume again the construction of the addition. This is not strange, since the College, following the Revolution and the cutting off of its main sources of revenue, was in a precarious situation financially. Even before the end of the war its financial situation had

3. We wish to thank Dr. A. Pierce Middleton, head of the Department of Research and Record of Colonial Williamsburg, Incorporated, for calling our attention to this.

become straitened, as is clear from a passage in the statute sponsored by Jefferson and passed by the visitors of the College in 1779 reorganizing the curriculum. This passage states that "the funds of the College" are "no longer competent to support so extensive an institution as that which the charter recommends . . ."

As for Thomas Jefferson — we know that he maintained an active interest in the College and for a number of years exercised a strong influence on its policies and that he made plans for the expansion of its activities. But he was hindered by the Assembly of the Commonwealth in the realization of his plans so that he eventually directed his energies toward the launching of a completely new educational project. In the layout for his "academical village" at Charlottesville we find him again using the idea of the quadrangle, but in this case it is on a far grander scale.

THE McKINLEY WIGWAM, 1896

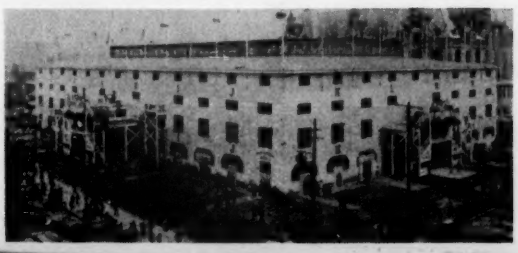
The untitled photograph on page 21 of "American Notes" for May, 1951 is from the collection of Boehl glass negatives at the Missouri Historical Society, St. Louis. The building, shown in another view below and known as the "McKinley Wigwam," was put up as a meeting place for the Republican Convention next to the present St. Louis City Hall on Twelfth Street. The structure is described in *Harper's Weekly* for June 20, 1896:

> The Auditorium is an oblong frame building of Georgia pine. It is substantial, but not ornate. It will accommodate nearly 13,000 people. There are galleries on the four sides. The delegates' seats are arranged in four sections, in straight lines, facing the platform of the presiding officer on the north. . . . . On each side of the platform are the press seats, 400 in number, and behind the chairman will sit the distinguished guests. In the space under these seats is the telegraphroom, with accommodations for 200 operators. The space under the tiers on the other three sides is divided into committee and conference rooms. There are ample exits on the four sides, and the architect calculates that he can empty the hall in ten minutes. Electric lights will be ready for use after dark if there should be a late session.

A floor plan may be seen in the *St. Louis Republic* for April 19, 1896.

"Wigwam" seems to have been a Republican term for a temporary convention hall. *Harper's Weekly* for September 1. 1866 figures one built in Philadelphia for the purpose.

Current reports found in the *St. Louis Republic* for 1896 by Miss Ann Roth of the St. Louis Public Library show that the exterior walls were built of Keene's cement, "giving a buff colored marble finish" (March 12), that the structure was considered to have the largest seating capacity of "any building ever erected for a convention" (April 19), that there would be no posts to shut off the view, "the acoustics are good" and that Isaac Taylor of St. Louis was the architect with Dankmar Adler of Chicago, the consultant employed by the Republican National Committee (Feb. 15).



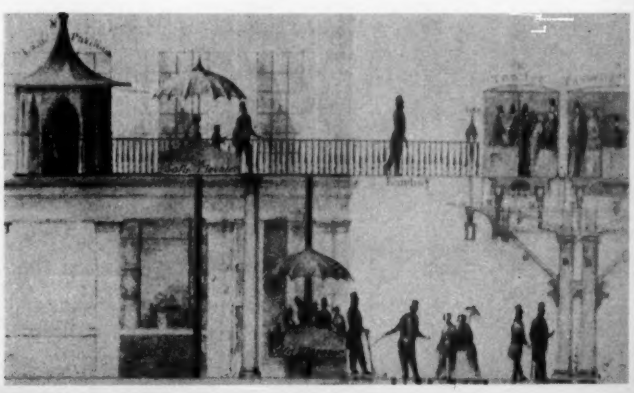
John A. Bryan contributes the further information: "Taylor, of course did not design it, as all the designing in his office from 1892 to 1917 was done by Oscar Enders, who came from the Chicago office of Henry Ives Cobb." For a generation awe-struck by the Chicago Columbian Exposition we feel that the Wigwam is a pretty remarkable example of simple, direct modern architecture. It seems to be a quarter of a century or more ahead of its time.

THE SOFA ELEVATOR

As we turn our thoughts towards New York City and the SAH conference there in 1952 we think of tall buildings and their essential equipment, such as the passenger elevator.

The late I. N. Phelps Stokes in his excellent little booklet *New York Past and Present*, New York, 1933, 38, reproduced a lithograph entitled VIEW OF BROADWAY in the CITY OF NEW YORK with the proposed ELEVATED RAILWAY invented by JOHN RANDEL, Junr. C. E. Shown here is a part of that view with two "sofa elevators" for lifting passengers up to the cars from street level. This is possibly the first representation of a passenger elevator in this country and we are sorry that we haven't a clue as to how it was intended to work.

The passenger elevator, surprisingly enough, is a most obscure subject. The best work we have seen is John A. Bryan's "Evolving the Elevator," St. Louis, 1947. (Copies may be had from the American Lithographing Co., 1602 Locust Street, St. Louis, Mo. for fifty cents.) As Mr. Bryan says, "While the elevator is less poetic than the aeroplane. its inventors and manufacturers may claim to have made quite a portion of the upper air habitable."



S. A. H. NEWS

NATIONAL PUBLICATION PROJECT

Vice-President Louise Hall is acting as our liaison officer on an important new project. The National Historical Publications Commission has proposed a full-dress editing of selections from the papers of a hundred to a hundred and fifty American leaders in many fields of endeavor, comparable in scholarly attention to that being accorded the Jefferson Papers by Dr. Julian P. Boyd and associates. Details appear in the Commission's preliminary report to the President of the United States, "A National Program for the Publication of the Papers of American Leaders," 1951. The Society of Architectural Historians, in common with similar organizations, has been invited by the Commission's executive director, Dr. Philip M. Hamer, to submit recommendations for incorporation in the final planning report.

AUGUST TOURS OF SAH

All members who expressed an interest in the August tour on the questionnaire were mailed notices at the end of June. Twelve members were able to attend the Nantucket tour on August 18, conducted by Henry Chandlee Forman. Fifteen members toured Oak Bluffs and Edgartown led by Carroll L. V. Meeks on August 19. The tours were enjoyable and informative and Drs. Forman and Meeks are to be thanked and complimented for making them possible. It has been suggested that Long Island be the site for a similar tour next August.

ENGLISH BIOGRAPHICAL DICTIONARY AND HAVILAND DRAWINGS

H. M. Colvin, St. John's College, Oxford, sends notice through Carroll Meeks of Yale of a biographical dictionary of English architects from 1660-1840. He hopes to publish it in 1952 and is especially interested in learning about the subsequent careers of young men who may have migrated to America during that period. He also writes of twelve volumes of John Haviland's sketches, specifications and correspondence which he discovered in the Somerset County Record Office at Taunton, England. They include information about his career in America and about the penitentiaries, etc., which he designed.

NEW MODEL OF KING SOLOMON'S TEMPLE

A 78 frame, 35mm. filmstrip of the latest reconstruction of Solomon's Temple is available from Southeastern Films, Mortgage Guarantee Building, Atlanta 3, Georgia at $2.50. The model, unveiled at Agnes Scott College last fall, was designed by Dr. Paul L. Garber, Professor of Bible there, and built by E. G. Howland of Troy, Ohio. Dr. Garber spent four years compiling archaeological findings of the last half-century for inclusion in the new reconstruction.